

AMERICAN VETERINARY REVIEW.

APRIL, 1901.

All communications for publication or in reference thereto should be addressed to Prof. Roscoe R. Bell, Seventh Ave. & Union St., Borough of Brooklyn, New York City.

EDITORIAL.

EUROPEAN CHRONICLES.

FOOT-AND-MOUTH DISEASE, although not likely to find its way to the United States, thanks to the good and strict measures that our friend, the Chief of the Bureau of Animal Industry, Dr. Salmon, has established, is a subject which always deserves the attention of the sanitary veterinarian, and which does not allow him to ignore the condition of live stock in other countries, in relation to the possibility, ever so small, of its importation.

Indeed, what is the general condition on the European continent? Is there a country where it does not exist, no matter how thorough the sanitary department may be? In France, for instance, foot-and-mouth disease, notwithstanding most stringent measures, is prevailing, and one might say spreading more and more. But not only is the Continent invaded, but England, which had been able to boast so rightly of her being free from it for years, has seen, comparatively recently, quite a number of outbreaks whose original source of infection has not been made out as thoroughly as the authorities desired it, notwithstanding the inquiries which were made, a result which is severely noticed in the *Journal of Comparative Pathology and Therapeutics* by the editor, who says: "It is evident that something is wrong in connection with what may be called the investigating department of the Board. It ought to be consoling to the members of the veterinary profession to reflect that little

or none of the discredit attaching to this unsatisfactory state of affairs belongs to them, for it is generally understood that the duties which are undertaken by the Board are at present distributed among its officials on the principle that the possession of a veterinary qualification is evidence of unfitness to undertake such work as the tracing of diseased and suspected animals. For that duty, a naval or a military training is apparently thought to be the best preparation." This is pretty severe criticism, which we are quite certain cannot be brought to the door of the officers of the Bureau of Animal Industry.

But, in relation to foot-and-mouth disease, there is another point which deserves the close attention of our veterinary inspectors. It is the subject of diagnosis. Prof. McFadyean in the last issue of his most valuable journal, relates a peculiar instance, where veterinary authorities in high standing disagree upon a diagnosis, some claiming the disease as being foot-and-mouth disease, while others claimed it was not. This last contention was correct. What was the matter, then? It was an affection which had already been described by the late Prof. Walley, which was called "contagious dermatitis" or "oef" in sheep, and also as "hair-and-hoof disease," "mouth-and-foot disease," or "carbuncle of the coronary band." Prof. Walley described the symptoms as follows: "In the early stages, the lesion is circumscribed and presents itself as a local inflammation, involving the skin and to some extent the subcutaneous tissue. The skin of the affected part, usually of the coronet and lips, in the first place, is swollen, hot and tender, and, where the color can be seen, red; in a few days a breach of the surface takes place, serum oozes from it and a sore is quickly formed, which tends to spread and to propagate itself to the skin of any part devoid of wool with which it comes in contact. The area involved in the diseased processes at the outset does not usually exceed an inch in diameter, but as the malady progresses the whole of the limb may become involved, either as the result of peripheral extension or by coalescence of different centres of disease. From being of the nature of a comparatively healthy

sore, the lesion assumes a somewhat malignant aspect. The cutaneous papillæ become hypertrophied and congested and readily bleed on being scraped. A purulent fluid of a dirty gray color and possessing a very unpleasant odor, is constantly discharged, and this collects on the surface of the sore, and with the viscosity produces a repulsive condition—a condition, in fact, closely allied to that which is seen in grease of the leg of the horse or canker in the foot of that animal. In addition to these diffused sores, others smaller in extent may form on the skin of the leg and even on the arm, but these isolated sores do not, as a rule, present the foul conditions just described, as the discharges, becoming inspissated, form a crust on the surface; and the same remarks apply, in the main, to the labial sores.”

The fact that an error of diagnosis had been made by one who is well acquainted with the symptoms of foot-and-mouth disease can be our excuse for presenting our veterinarians in the United States with such a minute description, but as similar errors might be made by those who have never seen a case of aphthous fever, and we think there are many in America, we have thought proper to guard them against such an error.

There seems to be another important point in relation to this question of differential diagnosis; it is the fact that this disease of sheep has never been observed to spread to cattle, and that any disease affecting the feet and mouth of sheep and which does not spread to cattle in contact with them may without hesitation be pronounced not to be foot-and-mouth disease.

* * *

A VETERINARY SYNDICATE.—The customs and habits of various countries are quite curious, and if some organizations are established with speculative objects principally, in others, on the contrary, they are for the moral benefit of a number collectively or individually.

The creation and organization of the powerful trades unions seem in a great many points to partake of both. Syndicates, however, it seems to us, assume more of either one or the other. After all, syndicates have good objects. Trades unions, we be-

lieve, predominate in the States, and, perhaps outside of the syndicates of business men, the trust companies, we do not know if syndicates of professional men exist. In France, every trade and every profession has its syndicate. For years those of butchers, bakers, etc., have existed; that of the horse-shoers was formed a few years ago; then came the druggists, the dentists, the physicians, and lately the veterinarians. Several departments in France have formed veterinary syndicates which in a short time will all unite into a general national syndicate. In union there is strength.

I have the constitution and by-laws of two of these syndicates. Their object is to establish between all veterinarians relations which would allow them to protect usefully and in common their moral and material interests; to solve as much as possible disputes that may arise between veterinarians themselves, between them and their clients, and to act, conciliate or arbitrate in all questions relating to the profession; and also to settle difficulties and quarrels between veterinarians and horse-shoers whom they may employ. In France most veterinarians have shoeing shops.

The idea of such syndicates may not be so improper, and what good could be derived from their organization cannot be ignored. A veterinarian has to complain of another for some professional breach of ethics and he calls on the syndicate to settle the trouble. An unsatisfied client (and there are some) is displeased at the services of a veterinarian; he objects to his bill. May not the syndicate possibly settle their troubles and avoid law suits, with all its loss of time, professional controversies and exhibitions of ill nature. One veterinarian resorts to unprofessional acts to obtain practice, lower charges, etc.; the syndicate settles it.

It is true many of these may also be treated by our veterinary organizations, state or national societies, and yet, no, for the societies ought to have for their object only scientific questions, while the syndicates would have only to consider those of a different nature, more business, more trade-like.

Considering all the advantages that may be derived from it, if French veterinarians have not yet obtained the law which will regulate their practice, we believe their forming syndicates, thus uniting together for their professional protection, is a good move.

* * *

A VETERINARY PRACTICE LAW FOR FRANCE.—Is it this new creation of veterinary syndicates, which shows the influence that they can exercise and the prospective union for protection that will be inaugurated, or is it the result of the official visits of the President of the Republic to the Alfort School? At any rate, a great reform is likely to take place, viz., the official and legal protection of veterinary practice. After years of procrastination and discussions the project of a law *regulating the practice of veterinary medicine in France* is at last presented before the Chamber of Deputies, signed by the President of the Republic and the Secretary of Agriculture.

At last the birthplace of veterinary science comes to the front, and it is probable that the protection which has been granted already in various European States, and which has existed for some time also in the United States, will be possessed by French veterinarians. It is better late than never.

The law has two sections. By the first the practice of veterinary medicine is prohibited for all who have not a diploma delivered by the national schools. Practitioners who have been engaged in practice for three years at least previous, and had been registered, shall be allowed to continue their work. Castration is not considered as exclusively belonging to veterinary surgeons, and, finally, foreign graduates may be allowed to practice in France providing they have obtained the French diploma. To this last effect special exemptions of attendance to school and of examinations shall be granted to the candidates.

The second section treats of the penalties inflicted upon the delinquents, consisting of fines and imprisonment, as the case may be.

While congratulations must be offered to brother veteri-

narians, with a hope that they may derive the profit that they anticipate by a law which grants them comparatively little, there is one part of the first section which will be of interest to foreign veterinarians, viz., that by which they may be allowed to come and practice in France.

Recognition of a foreign veterinary diploma is not new. For a number of years that of the American Veterinary College has received that recognition, and with it graduates of New York have been able to obtain a diploma from Alfort, but by the new law a wider range of privileges are promised, viz., exemption of length of time of attendance and even of examination. In years gone by, and even now, recent graduates of human medicine were coming to Europe to improve their knowledge, as our American schools are probably not yet as thoroughly organized as European institutions, especially on the subject of practical opportunities, there is an occasion that recent graduates of veterinary medicine may do well to take advantage of—it would be for their benefit and that of their future success.

A. L.

PROGRESSING BACKWARDS.

In the avowed work of supplanting the horse for practical purposes the automobile is making rapid strides—toward oblivion. One after another come reports from the various cities where their advent had been heralded as the death-knell of the faithful brute which has drawn the loads and borne the burdens of centuries that the syndicates of capitalists who have been backing them have grown tired of the monotonous occupation of sinking money and have announced the withdrawal of the machines from the streets. Only a few months ago a firm in Boston discarded twenty-eight and bought fresh horses; Philadelphia has had a like experience; Chicago has disbanded her company and retired more than a hundred after losing \$475,000 in seventeen months; Kansas City's maiden venture was undone almost before it was begun; it is an open secret that New York continues to operate her horseless cabs through fearful

financial loss, and hangs on, like Wilkins Micawber, in the hope that something will turn up; and we know of no commercial firm which has employed them that has not already dismissed them, or continue them merely as an expensive advertisement. Our esteemed New York *Herald* seldom mentions their existence now, and although it is energetic in its quest of news it failed absolutely to secure the item detailing the disbandment of the Illinois Electric Vehicle Company. Although a little late, we give it full permission to copy the facts of the case from the news pages of the current issue of the REVIEW. When inventive genius can daily replace the wear and tear upon the intricate machinery of an automobile as is done upon the complex machinery of the horse, then it may win in a fair competition; but it never can by boastful buncombe, unsubstantiated claims, and malicious denunciation of the honest horse, and when the air bubble has passed by they will still find that horse power over streets and roads is the cheapest and most reliable means of progression, unless every street and every road is provided with a steel track, with a trolley overhead or underground.

ALBERT W. CLEMENT.

Those who were best acquainted with Dr. Clement will be the ones who will appreciate most keenly the great loss which veterinary science has sustained in his untimely demise, in the midst of his active and most enthusiastic labors in its behalf. Few men had been enabled to prepare themselves so well for their life-work as he, who spent years in passing through the various steps of an acute medical education, perfecting his knowledge after obtaining his degrees by intelligent research and study in the post-graduate schools and special laboratories of Europe. United with these qualifications was a love of the work which he had espoused amounting to an infatuation, so that he pursued his quest of knowledge in his daily labors, and thus constantly improved his mind until he stood at the very front of the most learned of his calling. When we say that our profession has sustained a serious loss in the death of Dr. Clem-

ent, it is not meant in the platitudinous sense which accompanies many similar announcements, but we mean to say that one of her sons who could always be relied upon to put his shoulder to the wheel and push hard to attain any goal that would be for her advantage, has through death been lost to us. Year after year, he was a constant attendant upon the meetings of the National Association, and for fifteen years he was a worker for the best interests of that organization—upon her committees, upon the programme, wherever work was to be done; and, although feeling sometimes that he had not received just treatment, he never sulked; he was ready to resume work with a cheerfulness that proved his loyalty to the cause. Thrice was he honored by election to the Vice-Presidency, while in 1898 he became its President, which he declared was the greatest honor in the veterinary world, and which was sincerely appreciated by him. In local veterinary affairs of Maryland, he was ever a leading spirit, and he served upon the first veterinary examining board that was appointed, being largely instrumental in the securing of the laws which have made Maryland in advance of more favored States. In the realm of literature he has contributed a little text-book entitled "Veterinary Post-Mortem Examinations," while his papers contributed to the programmes of association meetings and to the professional magazines were always carefully prepared and the result of much study and investigation.

We say again, that Dr. Clement was a man we could ill afford to lose, for it will be some time before another will come forward who will throw into his work the love and the enthusiasm which always characterized his unselfish labors in behalf of the true science of veterinary medicine. A sketch of his career will be found elsewhere, together with resolutions of his colleagues of the Maryland Association.

THE KANSAS CITY VETERINARY COLLEGE gave its annual banquet at the Midland Hotel, Kansas City, Mo., March 7, 1901. Nearly 100—students of the college, faculty and veterinarians—were present.

ORIGINAL ARTICLES.

**EXPERIMENTS IN TREATING INFECTIOUS MAMMITIS
IN THE COW.***

BY DR. E. ZSCHOKKE, ZURICH.

Translated by ARCHIBALD R. WARD†, *Cornell University, Ithaca, N. Y.*

Some years ago in this publication the various methods for the treatment of infectious mammitis were reviewed and their inefficiency pointed out. The necessity for carrying on further investigations into the nature of this udder disease and of the possibility of its successful treatment was very evident, because from the reports of some veterinarians there is no doubt that in certain regions this disease assumes the importance of a plague, dreaded even more than foot-and-mouth disease itself.

The farmers are beginning now to apprehend more and more the peril to the productive capacity of their milch cows engendered by this infection. They are manifestly more on the alert for abnormal appearances of the milk, and promptly take measures to have an examination made. In this they do right. A timely diagnosis of the disease may be the means of preventing the spread of the infection. Besides this, individual consumers and cheese factories will receive milk of a more uniformly wholesome character, thus obviating many complaints and detrimental criticisms.

The more exact observations of the appearance of the udder and milk, and the constant increase in the number of samples sent for microscopic examination to the pathological department of the Veterinary College at Zürich, are attributed to an increased interest in and understanding of the disease.

The number and results of these investigations, omitting the

* Heilversuche beim gelben Galt der Kuh. *Landwirtschaftliches Jahrbuch der Schweiz.*, 1900, Heft. 2, S. 56.

† The translator acknowledges with thanks the valuable aid in his work received from Prof. W. L. Williams, of the New York State Veterinary College, and from Mr. Otto F. Hunziker, B. S. A.

many hundreds of samples of the milk of animals purposely inoculated, are embodied in the following table:

	Curable mammitis.	Incurable mammitis.	Not infected.	Total.
1894	11=45.8 per ct.	3=12.5 per ct.	10=41.6 per ct.	24
1895	10=50 "	3=15 "	7=35 "	20
1896	111=56.6 "	23=11.7 "	62=31.6 "	196
1897	132=49.6 "	50=18.7 "	84=31.5 "	266
1898	126=40.9 "	65=21.1 "	117=37.9 "	308
1899	179=50.6 "	42=11.8 "	133=37.6 "	354
Total	569=48.8 "	186=15.9 "	413=35.3 "	1168

Tabulated according to months, the samples sent in during the years 1896-1899 give the following averages:

	Curable mammitis.		Incurable mammitis.		No infection.		Total.	
	*		*		*		*	
Jan.	4.6	14	1.3	4	5.3	16	11.3	34
Feb.	7.	21	2.6	8	7.3	22	17.	51
March	12.3	14	4.3	13	6.3	19	23	69
April	11	44	3.5	14	9	36	23.5	74
May	14.2	57	5.2	21	11	44	30.5	122
June	16.7	67	4.7	19	8.2	33	29.7	119
July	18.2	73	5.0	20	14.5	53	33.5	146
Aug.	15.2	62	4.7	19	9.5	73	29.7	119
Sept.	12.9	48	4.2	17	10.0	40	26.2	105
Oct.	13.5	54	4	16	10.2	41	27.7	111
Nov.	8.5	34	4.5	18	9.0	36	22.0	88
Dec.	9.2	37	2.7	11	4.5	18	16.2	66

The figures in the columns under the star show the total number of samples sent in during each month of the four years. The figures opposite them show the average number per month for that period.

It is to be noted that the figures for the year 1896 begin with the month of April, for the law authorizing federal investigation of infectious mammitis in the Canton of Zürich first went into effect in April, 1896.

It appears from the foregoing that infectious mammitis is on the increase from year to year, or rather is brought to light in greater amount. It is also plain that while the disease is man-

ifest during the whole year, it is most severe in the summer months, at a time when the greatest milk production might occur.

In regard to the regional distribution it is worth noting that in certain communities the outbreak is so severe as to warrant speaking of it as a pestilence. The somewhat increased amount of infectious mammitis in the neighborhood of cities may be traceable to the more frequent purchase of fresh cows, because the period of udder congestion is the most favorable time to dispose of an infected animal undiscovered.

If the location of the infected herds be inscribed upon a map, that of the Canton of Zürich,* for instance, it is easy to see that certain parts of the canton are subject to a visitation year after year in the same manner, while other districts remain unharmed. The regions where it is encountered least are those in which agriculture is practiced in addition to dairying. These conditions suggest the idea that the strengthening of the constitution brought about by the use of dairy animals for labor exerts a repressive influence upon the infection.

Stable infection, *i. e.*, the repeated appearance of infectious mammitis in the course of a year in the same dairy, could be authenticated last year in twenty-three cases.

While in a large number of the isolated sporadic cases the means of the introduction of the disease could be recognized, yet there were many others untraceable to any visible source of infection.

The occurrence of four outbreaks of stable infection in which two to four animals became affected rapidly, one after another,

* It may be well to call to mind that in this region the disease may, for practical purposes, be classified into two types—a curable and an incurable form. The first is caused by the short streptococci, which the leucocytes are able to take up and destroy. The incurable form, on the other hand, is associated with long streptococci, which the leucocytes are not able to harm, and which, therefore, remain alive. These streptococci apparently wander through the duct of the teat into the milk sinuses, multiply rapidly, elaborate toxins which stop the milk secretion and cause the assembling of pus cells in the milk sinuses. If the pus cells are allowed to remain undisturbed, they will perform their natural function of curing as much as possible. But if they are milked out daily their function is interfered with and the cure is hindered or rendered impossible.

in the same manner, and in which cases there were to be found long streptococci in this animal and short in that, lead to the belief that there are not two species of streptococci associated with the disease, but only one.

Indeed, the earlier observation that the streptococcus of infectious mammitis varies in size according to the medium upon which it is grown establishes the fact of the variability of this form. It grows in short chains or clumps on agar cultures and in long chains in serum or condensation water. It appears that the conditions of existence in the udder are very dissimilar in different animals. This dissimilarity is to be attributed to every obstruction which we encounter more or less in every infection and which is usually termed resistance. This resistance seems to be quite variable.

We observed a case of short-chain streptococcus infection which recovered fully twice and again appeared a third time, fifteen to twenty weeks after parturition. Here was a very slight resistance, the quality of which was not lessened by the single onslaught of the disease, nor in this case was immunity conferred.

On the other hand, there have been recognized, in goats as well as cows, numerous cases of spontaneous recovery, as well as rare cases of failure to infect in spite of inoculation.

On the 8th and 11th of May, 1899, I inoculated two cows, with healthy udders, and two goats, using about 20 cm. of fresh infected milk from a case of infectious mammitis and which was very rich in streptococci. But it induced the disease in only one cow in the ordinary period of from three to five days.

One goat exhibited a continuous power of resistance. One cow exhibited the disease first on the 28th of May. She had also a few days before suffered from hæmaturia, losing a considerable quantity of blood and had shown a rise in temperature. After the cow had recuperated a few days, the pus and streptococci disappeared from the milk, so that by the 3d of June it was less slimy and became fully normal again on the 6th of June.

In order to explain this attack, one must assume that the affected animal in normal condition was resistant to infectious mammitis, and that only during the time of general debility were the streptococci able to gain the ascendancy and exercise their disease-producing power. A like weakening might be brought about by other causes, perhaps by the more severe bladder disease. The attack of fever, which is hardly to be attributed to the udder catarrh, may be regarded as proof of it.

It has been proven by numerous observations that such impairment of the resisting power, especially that brought about by chills of all kinds, opens the way for the appearance of infectious mammitis, only of course when the infection is present. So the disease appears frequently when white turnips are fed; when the change to pasture is made; in cold weather, especially when cold, damp grass must be fed, and after drinking very cold water. The outbreak is sometimes occasioned by chilling of the skin and by draughts.

Often the disease halts in its course; in other cases it subsides as soon as the predisposing causes are removed. This is true of the cases cited above, as well as of the following:

A spotted cow, pregnant ten weeks, owned by M. B., which had been affected with infectious mammitis in three quarters of the udder since June 3d, and which yielded only 585 cm. per day, was on June 20th of last year placed in this institution for experiments in treatment. The green fodder formerly fed was replaced by hay. As a precaution, suggested by earlier observations, we leave experimental animals two or three weeks without treatment in order to observe the behavior of the disease under the changed conditions. If no improvement occurs during the time, then the experiments are commenced.

On the 23d of June the milk of the cow mentioned cleared up and the sediment disappeared. From the 29th of June on no streptococci were to be found and every particle of pus had disappeared. The mess of milk rose to 1350 cm. The cow had

recovered without treatment and was returned. On the 14th of November this animal, whose milk yield had reached four liters, again showed infectious mammitis in one of the quarters which had recovered spontaneously before. Such cases of spontaneous recovery with temporary relapse occasionally occur, and serve as proof of a certain immunity.

Now for the attempts to cure. Earlier experiments have shown that it is impracticable to attempt to kill the streptococci or to obtain improvement by the injection of disinfectants in the udder on account of the great sensitiveness of the glands. Therefore, in these experiments only two substances, both harmless to the udder, were used, namely, potassium iodide, 1:1000, in lukewarm water, and itrol, 1:4000, at about 38° C.

In each case the udder was milked out, and from one hundred to three hundred grams of the solution were repeatedly injected into the teat, being well distributed through the gland by massage. Care was taken throughout to prevent the spread of the infection.

The animals showed neither indications of pain nor change in the glands, but the desired result did not follow. The secretion of the udder remained unchanged and the streptococci were found in nearly the same numbers as before.

Experiments with antistreptotoxin from the Pasteur Institute in Paris, with which some work had been done three years ago, were again resumed. This remedy was supposed to counteract the poison elaborated by the streptococci, and it was hoped that favorable results would follow its use in large doses or its injection directly into the udder.

After injecting 200 grams of this serum subcutaneously, within a period of three days, without any such result, on the 26th, 27th, 28th and 29th of July I injected about 30 grams of the remedy into a diseased milk cistern and distributed it well in the udder by rubbing and kneading.

A noteworthy curative result was lacking. Cultures and microscopic tests added proof that the antistrepto-

toxin exerts no appreciable effect upon infectious mammitis.

Just as unsuccessful was the application of argentic colloidale, which recently has been highly recommended as a general disinfecting agent. 50 grams of a one per cent. watery solution of this preparation were injected into the jugular vein. The pregnant animal bore this imposition very well. During the next few days the streptococci appeared somewhat diminished, but the purulent condition of the udder secretion remained unchanged.

Better results followed the use of silver citrate (itrol) in the form of an ointment (2 parts with 10 parts of camphor and 88 parts lard).

After rubbing this ointment for eight days upon the skin of the four affected quarters of an eight-year-old cow, the secretion cleared and the streptococci and purulent accumulation disappeared. After eight days more the secretion was again normal, but very sparse. The udder took on a violet color, which was soon lost. A skin eruption did not occur. Further observations were discontinued.

It is apparent that itrol has some effect, for rubbing with 20 per cent. camphor ointment without the itrol failed to produce the effect.

Since these recent remedies had put forth nothing of importance, a trial was made once more of the action of counter-irritants. It was shown that a strong and somewhat protracted rubbing with cantharides ointment would each time bring about either recovery or decided improvement.

But in the largest number of cases, especially when the udder secretion consisted almost exclusively of pus and serum, the milk secretion remained in abeyance. The pus and streptococci disappeared, the disease appeared cured, but the milk production either was entirely suspended or shrank to a few hundred cm. per day. Therefore the practical economic success was wanting.

There is no doubt that the poison elaborated by the strep-

tococcus of infectious mammitis exerts a harmful action upon the cells of the milk glands. Even if these structures do not die as a result of its action, they at least lose their physiological function and cease to yield milk. Afterwards, when the harmful influence is not at work, the secreting cells generally resume their function only when incited by the natural cause (parturition).

This appears to be a general law. A healthy cow when dried off can only exceptionally be brought back to lactation before calving again. There are, however, exceptions. Among them is one reported to us by District Veterinarian Hohn, of Richtersweil. A cow which, on account of mammitis, had not been milked for many weeks, later, before she had calved, again yielded a considerable mess of normal milk. We here have made a similar observation in a case treated by us.

Among goats, which, as is well known, go dry very early while non-pregnant, the spontaneous return of the milk secretion is occasionally observed in the spring in non-pregnant animals.

Reviewing the economic disasters which follow almost regularly the treatment of an udder whose secretion is wholly purulent and without regular milk constituents, the question as to whether or not any treatment is worth while must be earnestly discussed. We have already pointed out (*Landw. Jahrbuch*, 1893, and *Schweiz. Archiv. für Tierheilkunde*, 1897) that the type of infectious mammitis, which is associated with short streptococci, which latter the white blood corpuscles are able to take up and destroy, recovers without aid by means of the curative power of the corpuscles, provided that the udder is not milked out for five or ten weeks.

On the other hand, that type which is recognized by the presence of very long streptococci persists for a long time after the animal has been dry, because the corpuscles are unable to take up and destroy the streptococci.

These observations have been confirmed by later experience. When cows suffer from the curable type of infectious mammitis

and are not milked for many weeks before coming in, they resume the secretion of milk of normal quality and quantity after parturition.

We observed repeatedly that after ten to thirty weeks the one or another quarter would again suddenly become affected with infectious mammitis. It is difficult to say in these cases whether a fresh infection had occurred or whether the streptococci formerly present had persisted somewhere in the udder in a latent condition.

If, however, cows showed the symptoms of infectious mammitis immediately after parturition, it was generally the incurable form. But when the microscopic examination revealed short chains, then it indicated that the cow had been dry for only a short time, or not at all, or still more that the diseased quarters had been milked through the entire period of lactation, upon the supposition that by so doing the secretion of milk would more surely be resumed.

On the average the curable type is more abundant than the incurable in the proportion of three to one (3:1). However, among the seventeen cases that we have observed to occur during the first three weeks after calving, eleven were of the incurable type, and only six were of the curable type (2:1).

From what has preceded, it is evident that no sure treatment leading to the cure of infectious mammitis has yet been discovered, and that those cases cured by treatment are by no means of economic value. The best measures to take against infectious mammitis consist in not milking the affected quarter after the disease is discovered.

For by that means will not only the natural curative processes be aided, but also further spread of the infection will be hindered. For no matter how careful the attendant be (segregating the diseased animals, washing the hands after milking, etc.), there remains yet the danger of infection so long as the infective secretion is drawn. The important point lies in the early discovery of the disease, so that it will be confined to one quarter if possible, and leave the other two or three functional. In

this manner the harm caused by the disease will be considerably lessened and rendered at least bearable until the next parturition.

The farmer will do well to watch the milk and the udder very carefully, so that upon the appearance of any defect in the milk, an examination for infectious mammitis may be made as quickly as possible. This will enable him to be on his guard at the right time to prevent a further spread of the infection. Until the examination is made, he should isolate the cow, milk her after the others, and milk her sound quarters before the diseased one. The hands should be smeared with lard while milking instead of the common practice of dampening the hands with milk. None of the abnormal secretion should be allowed to fall upon the bedding.

The hands are afterward to be well washed with soap and rinsed in warm 3 per cent. carbolic acid solution to disinfect them. The cow's teats should likewise be first washed with soapsuds followed by warm carbolic acid solution.

It is now stated anew that infectious mammitis appears without specific symptoms. In spite of numerous observations, it is not yet possible to make a certain diagnosis from the appearance of the milk or the udder. Sometimes some grains or shreds are found in the apparently normal milk, sometimes the secretion is viscid as phlegm, sometimes contains yellow flakes or is slimy, purulent and oftentimes bloody and shows a sediment after standing. Sometimes the disease is recognized by the bad, salty taste, sometimes by the curdling during cooking, and often the particles in the milk strainer.

The general condition of the animal is not noticeably disturbed except that the mess of milk is constantly lessened. The udder is at times somewhat swollen and hard; very often without a noticeable change. For this reason a professional examination is essential and this necessitates the microscopic examination of the sediment of the milk samples from the diseased quarters.

If anywhere, it is here that the use of the microscope for the confirmation of a diagnosis is necessary.

The description of the technique of the examination is to be found in the *Schweizer. Archiv für Tierheilkunde* for the year 1897 (S. 148).

Whether veterinary police regulations against this disease are required will be seen after the distribution of the disease over the country is somewhat better known.

THE SILVER SALTS OF CREDE AND THEIR APPLICATIONS.

BY ADOLPH EICHHORN, D. V. S., OF THE AMERICAN VETERINARY HOSPITAL, NEW YORK.

A Paper read before the Veterinary Medical Association of New York County,
March 6, 1901.

The preparations which I am to describe are by no means new discoveries in the line of medicine, yet I know there is very little known about their use and application in veterinary medicine. My attention to their existence was drawn from foreign literature by the good results obtained from their use in human medicine, but especially by an article of Dr. Angelo Baldoni, who carefully studied these drugs as to their antiseptic properties and their valuable applications in veterinary medicine. The Credé salts are three in number—the argentum colloidal or collargol, the citrate of silver or itrol, and the lactate of silver or actol.

Collargolum is a non-poisonous allotropic silver, appearing in different sized irregular granules, soluble in water in the proportion of 1:100, which solution is black in color. It dissolves also in glycerine, in the proportion of 1:25.

To prepare the solution, I find the best way as follows: First, grind the granules, then add a small amount of glycerine, which should be slowly and thoroughly mixed, then add the water. In the solution we soon notice a slight black precipitate, which cannot be avoided, even in the absence of light and air. This preparation is recommended as a most effective general antiseptic, which can be introduced into the system without

causing either local reaction or general poisonous effects. The advanced theory as to its therapeutical action is that it remains metallic silver in sterile blood or lymph, but in the presence of pathogenic bacteria or their toxins it enters into combination, and acts as a vigorous germicide and anti-toxic agent.

The citrate of silver is a heavy white powder, slightly soluble in water; the solution is opaque, having a slightly acid reaction. It is more soluble in glycerine; a solution of one per cent. has a milky color. In this solution also, when left standing for a certain length of time, the silver will precipitate as a greyish powder.

The lactate of silver is also a heavy white powder, and is the most soluble of these preparations; dissolves in glycerine 1:8, and in water 1:100; the silver does not precipitate in the solution, which is strongly acid in reaction.

All the silver preparations are to be kept in dark bottles, without exposing them to light.

These preparations were used to a considerable extent, in human and veterinary surgery by the German army during the Chinese war, the Credé salts being used exclusively with the most satisfactory results. Müller and Wolff also applied the salts in a great many cases, claiming the best results and predicting for them a great future. Weidman, Rider and others have used the citrates and lactates of silver in different affections—as a powder, in solution of 1:100-4000, and as ointments. Dieckerhoff wrote an extensive work on his experience with these drugs, especially in regard to the internal administration of the *argentum colloidal* as an antiseptic agent in septic infections, also in *purpura hæmorrhagica*, where it is claimed to be almost a specific. In these conditions he recommends an intravenous injection of about 60 grm. of a one per cent. solution of collargolum. Similar good results were obtained from this treatment by Meisner, Kronigs and Roder, while Meisner and Tannebring cured anthrax in the ox by the injection of 250 g. of two per cent. solution of collargolum into the jugular vein. Other reports in regard to the antiseptic properties of these salts

and especially as to their application in surgery, are very favorable. The advantages are that by their use the wound secretion is diminished to the minimum, and thereby healing of the wound by first intention is facilitated; unhealthy wounds, with no tendency to heal, abraded surfaces, fistulæ, punctured wounds, etc., treated with mild solutions of these salts, terminate in most instances very favorably in a very short time.

I observed in cases of plantar neurectomy healing by primary intention, treating the wound with a 1:2000 solution of argenteum colloidal. I also obtained very good results from the application of the powder of citrate of silver in punctured wounds of the foot, and, following the advice of Prof. Lanzillotti, to disinfect the foot with a 1 per cent. solution of the citrate of silver, then to cut down on the wound and dress with the powder of citrate of silver. There is no need to renew the dressing for three or four or even five days, after which we will find a dry healthy wound with a broad rim of new formed horn.

Dieckerhoff, Baldoni, and others, experimented with the argenteum colloidal as a diagnostic agent for glanders, the results of which are not very satisfactory. It was proven that an injection of argenteum colloidal intravenously will cause a more marked temperature reaction in glandered horses than malleine, but, on the other hand, it was observed that a reaction took place in other diseased conditions than glanders, but this condition we are apt to get with the use of malleine also. I tested a horse with collargol, which manifested all the characteristic symptoms of glanders. The result of this test was a reaction of 5° F., while the same horse in a test with malleine showed only a reaction of $3\frac{2}{3}^{\circ}$ F. But as I did not employ the drug for the test sufficiently to pass an opinion on it, I will conclude from the experience of others, which, when taken into consideration, does not seem to be reliable enough to condemn an animal, just on the reaction of this test. Further experiments will teach us more about it, as the drug has not been tried enough to form a definite opinion as to its diagnostic value.

causing either local reaction or general poisonous effects. The advanced theory as to its therapeutical action is that it remains metallic silver in sterile blood or lymph, but in the presence of pathogenic bacteria or their toxins it enters into combination, and acts as a vigorous germicide and anti-toxic agent.

The citrate of silver is a heavy white powder, slightly soluble in water; the solution is opaque, having a slightly acid reaction. It is more soluble in glycerine; a solution of one per cent. has a milky color. In this solution also, when left standing for a certain length of time, the silver will precipitate as a greyish powder.

The lactate of silver is also a heavy white powder, and is the most soluble of these preparations; dissolves in glycerine 1:8, and in water 1:100; the silver does not precipitate in the solution, which is strongly acid in reaction.

All the silver preparations are to be kept in dark bottles, without exposing them to light.

These preparations were used to a considerable extent in human and veterinary surgery by the German army during the Chinese war, the Credé salts being used exclusively with the most satisfactory results. Müller and Wolff also applied the salts in a great many cases, claiming the best results and predicting for them a great future. Weidman, Rider and others have used the citrates and lactates of silver in different affections—as a powder, in solution of 1:100-4000, and as ointments. Dieckerhoff wrote an extensive work on his experience with these drugs, especially in regard to the internal administration of the *argentum colloidal* as an antiseptic agent in septic infections, also in *purpura hæmorrhagica*, where it is claimed to be almost a specific. In these conditions he recommends an intravenous injection of about 60 grm. of a one per cent. solution of collargolum. Similar good results were obtained from this treatment by Meisner, Kronigs and Roder, while Meisner and Tannebring cured anthrax in the ox by the injection of 250 g. of two per cent. solution of collargolum into the jugular vein. Other reports in regard to the antiseptic properties of these salts

and especially as to their application in surgery, are very favorable. The advantages are that by their use the wound secretion is diminished to the minimum, and thereby healing of the wound by first intention is facilitated; unhealthy wounds, with no tendency to heal, abraded surfaces, fistulæ, punctured wounds, etc., treated with mild solutions of these salts, terminate in most instances very favorably in a very short time.

I observed in cases of plantar neurectomy healing by primary intention, treating the wound with a 1:2000 solution of *argentum colloidal*. I also obtained very good results from the application of the powder of citrate of silver in punctured wounds of the foot, and, following the advice of Prof. Lanzillotti, to disinfect the foot with a 1 per cent. solution of the citrate of silver, then to cut down on the wound and dress with the powder of citrate of silver. There is no need to renew the dressing for three or four or even five days, after which we will find a dry healthy wound with a broad rim of new formed horn.

Dieckerhoff, Baldoni, and others, experimented with the *argentum colloidal* as a diagnostic agent for glanders, the results of which are not very satisfactory. It was proven that an injection of *argentum colloidal* intravenously will cause a more marked temperature reaction in glandered horses than malleine, but, on the other hand, it was observed that a reaction took place in other diseased conditions than glanders, but this condition we are apt to get with the use of malleine also. I tested a horse with collargol, which manifested all the characteristic symptoms of glanders. The result of this test was a reaction of 5° F., while the same horse in a test with malleine showed only a reaction of $3\frac{2}{5}^{\circ}$ F. But as I did not employ the drug for the test sufficiently to pass an opinion on it, I will conclude from the experience of others, which, when taken into consideration, does not seem to be reliable enough to condemn an animal, just on the reaction of this test. Further experiments will teach us more about it, as the drug has not been tried enough to form a definite opinion as to its diagnostic value.

As to the antiseptic properties of the Credé salts, Prof. Baldoni took considerable pains to investigate the germicide action of the three salts, which he tried most extensively on the streptococcus, the staphylococcus aureus and albus (these micro-organisms being the most dreaded in surgery). He found the citrate of silver, in a solution of 1:6000, caused death of the staphylococcus aureus in 30 minutes, the staphylococcus albus in 20 and the streptococcus in 22 minutes. In a solution of 1:1000 all died within 7 minutes.

All these microorganisms were very virulent, causing death in guinea-pigs by inoculation in about 12 to 24 hours. The lactate of silver in a solution of 1 per cent. destroyed the staphylococcus albus in 2 minutes, the staphylococcus aureus and the streptococcus in 3 minutes. The 1 per cent. solution of collargol destroyed the staphylococcus albus in 20 minutes, the staphylococcus aureus in 22, and the streptococcus in 30 minutes. He states further that it would be advisable to employ these salts, especially the lactate, in veterinary medicine, as its antiseptic properties are higher than that of the sublimate. Koch and Beherings claim that the strength of these salts are four times that of the bichloride. The salts are far superior to the sublimate, as when the solution meets the alkaline wound secretion, and the liquids of the tissues, they do not form an insoluble substance as does the sublimate, but form a soluble composition, which will penetrate into the tissues, thereby acting in the deeper parts.

The following are a few cases where I have employed with very good results the Credé salts:

I. Bay gelding, with a punctured wound on the off flank, caused by a shaft, the wound extending backwards and inwards about 8 inches deep, and $2\frac{1}{2}$ inches in diameter, nearly penetrating the abdominal wall. Treatment consisted of injections with a solution of argentum colloidal, 1:1000; the wound healed inside of three weeks, there being very little discharge.

II. Chestnut gelding, came to the hospital with a lacerated wound on the off forward heel and the off hind coronet. There

was considerable loss of substance ; the wound on the coronet showed no tendency to heal in spite of different antiseptics and caustics used. The second day after the application of a moist dressing of the argentum citrate there was very little discharge ; wound had a healthy appearance and healed completely in 9 days.

III. Bay mare had bad synovitis on the near hind fetlock ; the joint was opened in three places and the probe could be passed through the joint. There was a profuse infected synovial discharge. Treatment consisted of injections of argentum colloidal, 1:500 ; on the fourth day the joint was closed, and the wound healed nicely ; the animal was put to work on the 24th day from the beginning of the treatment.

IV. Bay mare, with fistulous withers, belonging to a veterinarian, who was disgusted with treating the animal and sent it to the hospital. A free incision was made, after treatment consisting of injections with citrate of silver, 1:1000. There was very little discharge following the treatment, and the animal was sent home cured after four weeks.

I could report a great many other cases in which I obtained the best of results with these salts, but knowing that there are always some who can not obtain the results expected, I will not praise them too highly.

The drugs were procured by Dr. W. J. Coates, and with his permission I applied them in the American Veterinary Hospital. I take this opportunity to extend my thanks to him for his aid in my investigations and experiments, in which he is always very liberal to me.

Hoping I have interested you in describing drugs which are almost unknown to veterinarians, and considering we are to keep step with the new discoveries in the line of therapeutics, I think I have fulfilled my mission.

THE LIVE STOCK INSURANCE COMPANY, which has operated in New York and Brooklyn for a number of years to the discomfort of many practitioners, has gone the way of all predecessors.

A NEW METHOD FOR APPLYING THE RABIES TEST.*

BY CHARLES F. DAWSON, M. D., D.V.S., BALTIMORE, MD.

A recent endemic of canine rabies afforded me a good opportunity for testing a new method of diagnosticating it by the inoculation of rabbits.

The method upon which diagnoses have in the past been based and which has been employed in this experiment as a check upon the new method here described, consists, as you all know, in the injection beneath the dura-mater of two or more healthy full-grown rabbits of a few drops of brain emulsion prepared from the brain of the suspected animal. The consequent and necessary trephining of the rabbits is attended occasionally with deaths from cerebral hæmorrhage, septic infection and often permanent injuries to the brain, which frequently cause symptoms resembling those of rabies. Added to this, there is a still more important consideration, which is the ever-present possibility of inoculating one's self with the virus of rabies, owing to the necessity of sewing up and otherwise manipulating an infected wound, it being almost impossible to inject the virus subdurally and not have some of the virus well up through the perforated dura-mater upon the withdrawal of the syringe needle. All operations upon the brain are, of necessity, attended with the risks of injury to that organ; therefore, the less complicated the operation, all else being equal, the fewer are the chances of injury. It seemed to the writer that some other method, to which most of the above mentioned objections would not hold, could be devised, and he therefore determined to put into practice one which had occurred to him some time previous to its adoption, but which had not been tried for lack of material. This method, which will be designated *infra-cerebral*, in contradistinction to the original, or *sub-dural*, which, for the sake of anatomical consistency, will be known in this article as the *supra-cerebral* method, is as follows: A pea-sized

* Abstract read before American Society of Bacteriologists, in December, 1900, Baltimore meeting.

piece of the brain substance of the suspected animal is ground in a sterile mortar containing 5 cc. of sterile .6% sodium chloride solution, and is filtered through sterilized cotton. The resulting filtrate should be of the consistency and color of milk. About two minims (four drops) of this suspension are injected, by means of a hypodermic syringe having a very fine needle $\frac{7}{8}$ inch long, on to the base of the anterior cerebrum, above the dura-mater by way of the optic foramen. Although this foramen in rabbits is relatively very large, and there is little risk of damaging other structures, if the operation is carefully done, the nature of the operation precludes one's becoming expert in passing the needle through the foramen by practice upon live rabbits; therefore, it is wiser to gain the necessary experience by repeated trials upon dead animals, before attempting the inoculation. When full-grown rabbits are used, it will be found that the $\frac{7}{8}$ inch-long needle is of about the right length to just pass through the foramen and the dura-mater, if pushed in up to the nozzle of the syringe. In performing the operation, the rabbit is thoroughly anæsthetized and held so it will rest upon its chest and abdomen. The head is grasped with the left hand and the syringe is held in the right hand. The right nictitating membrane is lifted out of the way by means of the syringe needle, which is then passed backward and upward through the conjunctival sac and orbital tissues until it is made to enter the optic foramen. The syringe barrel is now firmly held by the thumb, second, third and fourth fingers, with the fore-arm at rest upon the table and the piston is pushed up with the index finger until it is stopped by the traveling nut which had been previously set at a point to allow two or three minims of the virus to be expelled. The needle is carefully withdrawn and the rabbit is allowed to recover from anæsthesia. It is obvious that if too much material be injected, or the needle be passed far enough to injure the brain, the rabbit may die from brain pressure or from brain injury. Frequently, a rabbit will show symptoms of slight brain pressure, but these pass off as soon as the pressure is removed by the dispersion of

the injected virus. Aside from the serious objection to producing an infected wound, which always occurs in the supra-cerebral method from the outflow of the injected virus through the perforated dura-mater, in this method all the virus injected remains, either on the base of the brain, or, if expelled from the dural cavity, probably lodges in the tissues of the posterior part of the orbital cavity. The method is, therefore, much safer as regards possible self-inoculation. The optic nerve is rarely injured, as it is quite small, and its mobility and density largely prevent the penetration of the needle into its substance. Moreover, the infra-cerebral method requires only a syringe to apply it, while the supra-cerebral method requires an expensive set of especially designed instruments.

It is absolutely necessary that the animal be deeply anæsthetized, and, as between chloroform and ether, the writer has found sulphuric ether to be the safe anæsthetic. Should the anæsthesia be too profound and the animal show symptoms of collapse, a few minims of weak alcohol given subcutaneously will revive it. The tongue should be gently pulled forward with a pair of forceps and artificial respiration performed by alternate pressure upon the abdomen and thorax. When natural respiration is re-established, and the animal has completely recovered, it may be returned to its cage and kept under daily observation.

Although the rabbits die with all the symptoms of rabies, an opinion should be given only after the nature of the disease has been thoroughly established. A diagnosis is, in a case where some one has been bitten, of such prime importance, meaning in case of a positive diagnosis, the expenditure of a large amount of time and money for treatment on the part of the person bitten, and, in the case of negative results, relief from the constant dread of the disease, that post-mortem examination of the experimental rabbits should be made to exclude the possibility of death from other causes. In addition to the macroscopic examination, culture tubes should be inoculated from the organs, and any cultures obtained should be studied to

exclude the possibility of death from other bacterial disease.

The supposed immunity to rabies on the part of some of the lower animals, as well as of man, is not to be lost sight of, and for this reason the more rabbits inoculated the better. At least three should be used. In one case, in which three rabbits were inoculated (not here recorded), only one came down with rabies, showing that the chances of making a diagnosis in this particular case was only one in three as applied to the three rabbits used. In this work rabbits are much to be preferred to guinea-pigs, not only because they are larger, but because the inoculation disease is more marked, and is extended over a longer period in them, giving an opportunity for a more lengthy clinical study. In guinea-pigs we sometimes get typical symptoms. They manifest a furious form of the disease, which lasts over a sufficiently long period for observation. In other cases guinea-pigs may die of rabies, having manifested no particular symptoms other than those of illness and emaciation. On this account it is manifestly unsafe to risk such an important question by the use of guinea-pigs for diagnosis.

The following is a brief description of the symptoms in most of the cases tabulated in this article produced by the inoculation of the "street" virus from seven different cases, according to the infra-cerebral method: Generally by the twelfth day after inoculation, sometimes a day or so earlier or later, the rabbits show a hypersensitive condition, which is most plainly marked when the hairs around the nose or along the spine are touched lightly. They will try to get away from the spectator, crouch together in the far end of the cage, and struggle to get underneath each other. At this time the symptoms are of little diagnostic value, because other conditions may produce them, and a record of them is only useful when they are followed on subsequent days by more pronounced symptoms. The hypersensitiveness increases from day to day, and is plainly shown when the animals are disturbed. In response to such a stimulus, they will make rapid movements with the hind legs, sometimes throwing the bedding into one's face in their efforts to

hide. This condition is succeeded by one in which they sit crouched in a corner of the cage, and apparently have partially lost the use of the hind legs. If poked with a stick or pushed over they are slow in regaining their former position; their body rolls somewhat from side to side before its equilibrium is entirely established; the hind legs remain drawn up, and if forcibly extended they are not withdrawn quickly, as in health. The ears lie upon the shoulders; the head is somewhat depressed and extended forward, and the eyes lose their wide-awake appearance. During this period the appetite seems lost and the animal rapidly emaciates. In a typical case the symptoms in such an animal will become progressively pronounced, and on the fourteenth or fifteenth day the animal will be found down and to have entered the paralytic stage. In many cases all the stages are shortened to such an extent that they are not recognizable, and the animal dies soon after the first symptoms manifest themselves. In some cases, in which the various stages are prolonged or the symptoms are late in being manifested, the cause is either to be ascribed to a weak original virus, insufficient dose, or, in cases where the supra-cerebral method has been employed, to a leakage of the injected virus through the perforated dura-mater. For these reasons care should be exercised in preparing the virus to obtain a milky fluid for injection.

In the paralytic stage, the animal lies apparently, though not really, unconscious, at full length on its side with eyes partly closed and head extended backward. The breathing is almost imperceptible, and the whiskers move slightly with the respiratory movements. The limbs have the natural position. Occasionally convulsions appear, which last about a minute. These may be artificially produced by lightly tapping the animal in the flank. During the seizure, the limbs may go through the co-ordinative movements of locomotion. Sometimes the convulsions are simply tetanic in character. The head will be drawn still further back and masticatory movements will be noticed, with grinding of the teeth. Sometimes efforts at vocalization will be made, but no sound is produced, probably be-

cause of partial or complete paralysis of the vocal cords. The animal may lie in this condition from one to three days and often more, before death ensues.

In order to show the comparative value of the two methods as regards the period of incubation and the duration of the disease, Table I is appended. It shows that in most cases the rabbits inoculated by each method exhibited symptoms of rabies at about the same time, or that, as would be expected, the incubation period is about the same in the two methods.

In the cases of rabbits Nos. 343 and 346, inoculated supra-cerebrally with virus from dogs Nos. 70 and 71, respectively, it will be noticed that they failed to die of rabies even after having shown symptoms simultaneously with Nos. 340, 341 and 342, which were inoculated with virus from dog No. 70 also, and which died of rabies in 16, 21 and 26 days respectively, and with Nos. 344, 345 and 347, which were inoculated with virus from dog No. 71, and which died of rabies in 14, 17 and 14 days

TABLE I.

Virus.	Animal.	Date.	Method.	Incubation Period.	Duration of Illness.
Dog 58.	Guinea-pig 220.	Nov. 15, '99.	Infracerebral.	Unrecorded.	15 days.
	" " 223.	" "	" "	" "	15 "
	" " 233.	" "	" "	" "	14 "
	Rabbit 235.	" "	Supracerebral.	16 days	18 "
Dog 59.	Rabbit 242.	Nov. 29, '99.	Infracerebral.	13 days.	15 days.
	" 245.	" "	" "	14 "	15 "
	" 246.	" "	Supracerebral.	13 "	17 "
Cow.	Rabbit 252.	Dec. 4, '99.	Infracerebral.	12 days.	12 days.
	" 253.	" "	" "	12 "	15 "
	" 248.	" "	Supracerebral.	12 "	17 "
	" 249.	" "	" "	12 "	19 "
Dog 64.	Rabbit 336.	Dec 8, '99.	Infracerebral.	12 days.	18 days.
	" 335.	" "	Supracerebral.	12 "	17 "
Dog 66.	Rabbit 1000.	Dec. 18, '99.	Infracerebral.	16 days.	20 days.
	" 324.	" "	" "	16 "	23 "
	" 332.	" "	" "	16 "	22 "
Dog 70.	Rabbit 340.	Dec. 21, '99.	Infracerebral.	14 days.	16 days.
	" 341.	" "	" "	14 "	21 "
	" 342.	" "	Supracerebral.	14 "	26 "
	" 343.	" "	" "	14 "	Recovered.
Dog 71.	Rabbit 344.	Dec. 28, '99.	Infracerebral.	12 days.	14 days.
	" 345.	" "	" "	12 "	17 "
	" 347.	" "	" "	12 "	14 "
	" 346.	" "	Supracerebral.	12 "	Recovered.

respectively. The failure of a fatal termination in these two cases can be explained upon the theory that they were either immune to a fatal form of the disease, or that the dose administered was insufficient to produce a fatal attack.

A PECULIAR DISEASE AFFECTING HORSES.

BY E. J. LIST, HAVANA, ILLINOIS.

Read at Bloomington before the Illinois State Veterinary Medical Association, Feb. 12, 1901.

As you will readily understand by the title of my paper, I am to deal with a disease that is not frequently met with and one that I am unable to find described in any text-book or journal at my command. Therefore, I think it well to bring it before you for your earnest consideration, as by so doing I may gain knowledge and be benefitted thereby, and I trust that it will be of interest to you.

The disease affects only the equine species, and has been traced directly to the feeding of hay grown on bottom lands. Havana is situated on the east bank of the Illinois river, where the soil is high and sandy. On such soil it is never met with, but just across the river is the Illinois river bottom, which overflows occasionally; the soil is mucky and has a great many low marshy places in it. From such ground the hay is mown, which causes the disease in question, and, peculiar as it may seem, it is only in certain seasons that it is prevalent. At other seasons it is never met with—that is, we may have it one year, then for two or three years be free from it. A great deal of this land has never been cultivated, and is covered with native slough grass that grows four or five feet high, with a coarse stem. This is the hay that most often causes the trouble, but it may originate when timothy or other hay is harvested from the same soil. It will not cause trouble or produce the disease if it passes through the winter. It is most prevalent in the fall or summer seasons, it making no difference about the condition of the hay, whether cured well or otherwise.

The farmers in this locality believe the trouble is caused by a certain weed found in the hay, but scientific analysis of the weed has proved it to be harmless. After careful study of the conditions, I believe it is caused by a certain spore or fungus that collects on the hay stalk in the same way as "corn-stalk disease," in cattle, with the difference that it affects horses, but I have not been able to isolate the germ.

Semeiology.—The first noticeable sign of disease is a slight nervous condition; a horse otherwise docile will shy when you enter the stall; next he will fly back on his halter, elevating his head as high as possible, and if he succeed in breaking his rein, he will go backward until he meets some solid object to stop his backward motion. Then he will brace up for a few moments, the eye will begin to twitch, and he will tremble furiously for a few moments; then, perhaps, he will grab the earth with his teeth in rapid succession or his hoof or leg or any object in reach. All the while there is great uneasiness and nervous anxiety depicted on his countenance, and at such time his mouth will be dry and hot. As the disease progresses he will probably go down with a spasm, and while down he will keep up the motion of the mouth, still grabbing at the earth, and his legs will move rapidly as if he were trotting. Perhaps the symptoms will subside for a short time, then renew again, and so on until death relieves him, gradually growing weaker from exhaustion, and the great nervous tension that he undergoes; or in less severe cases he may not lose his footing, the spasms are not so severe, and all other symptoms pointing to a milder case. In such cases you may expect recovery in a short while.

Pathology.—I am of the opinion that the trouble lies within the brain; that there is present a terrific congestion of the brain and meninges, brought on by the direct action of the spore affecting the nerve cells, or perhaps by ptomaine poisoning, and as a natural consequence it is followed by meningitis or inflammation of the brain, and death of the animal.

Treatment.—The treatment is very unsatisfactory, although a great number of milder cases recover in from 24 to 36 hours.

At the onset you are unable to approach the horse to give him medical aid from the delirious frenzied condition of the animal, as he will bite, strike with his legs, and so forth. Believing as I do that the trouble is congestion of the brain, I have directed my treatment according to conditions. The first thing to do is to apply ice packs to the brain, changing them often, and aconite and potassium bromide internally. I have never tried chloral hydrate, but believe it would be indicated.

FISTULA OR POLL-EVIL.

By GEORGE I. SMITH, D. V. S., LEXINGTON, MO.

Perhaps there is no disease with which the average country practitioner comes in contact that is so resisting and obstinate in treating as is fistula or poll-evil.

Its origin being specific or not, it requires good persistent treatment and a thorough knowledge of the drugs or chemicals used, and also to know when they have been sufficiently used, or to know when to quit. Repeatedly cases have come to me for treatment when there was absolutely nothing to be done save to let them alone and give nature a chance to overcome the effects of drastic caustics from the hands usually of "Father Barbarism." In its early or primitive stage it is easy of treatment, that is, treatment in line of "cause and effect." The nature and conditions of the case offer difficulties which only the trained practitioner and close observer can readily overcome. Through ages untold we have heard of men who are famous in curing fistulæ; we read of gun-shot prescriptions that never fail, yet there are animals after animals which have been treated by this man and by that man and finally passed up as incurable from the simple fact that the course pursued, with the strongest and most deadly caustics, was in absolute opposition to the curing effects or removing the cause. Dr. Pence, of Troy, Ohio, speaks of tincture of iodine as a reliable treatment, which I can endorse from personal experience. I have often used it and at all times with good results. However, there

are cases that are not so susceptible to the iodine treatment. For instance, where the bone has become involved, the scapula or vertebræ, and especially the vertebræ.

I would like to call your attention to one case which I have just treated. A carriage horse, about ten years old, with the history that three years ago he broke out on both sides of the withers, and under the treatment of above famous man was cured in nine months.

From then until the first of last December he was at work, at which time swelling was noticed about the head and withers. I was called on Dec. 10, and upon examination found a collection of pus on each side of the withers and poll. The discharge from the four free openings I made was not less than a gallon and exceedingly granular, showing age. I put him under treatment of daily doses of iodide of potash, with good irrigation and drainage, hot compresses and injections of protargol three times daily. In six weeks he was returned to his usual work, and at this writing appears free from scar or blemish and absolutely sound.

I have used protargol several times with like results, and can see no reason why it should not become a decided favorite, except it is an expensive preparation. But my experience with it, like the iodine, is that it is not so useful when the bone has become involved. In all cases, however, the internal use of iodide of potash is of great benefit. Let us hear from others on this line.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

THREE CASES OF PSEUDO-ABSCESS OF LUNGS.

By W. L. WILLIAMS, Professor of Surgery, New York State Veterinary College, Ithaca, N. Y.

I. Abscess of Liver, with Rupture Into the Right Lung.

Patient (1690), a grade shorthorn steer, one year old, had been unthrifty for some three months, and being suspected of tuber-

culosis was tested therefor March 1, 1899, with negative results.

On March 25 the patient refused food and water, and an examination disclosed apparent pneumonia, which rapidly grew worse and developed symptoms of abscess of the right lung. On March 27 tympany also appeared, which was partly relieved by the administration of aromatics. The animal died a few hours later.

Autopsy revealed multiple abscesses of the liver, with adhesions of the latter to the diaphragm and rumen. One abscess cavity communicated with the rumen, another through an opening in the diaphragm with the upper portion of the right lung, thus accounting for the symptoms of pneumonia and pulmonary abscess. The unruptured hepatic abscesses contained about one gallon of thick pus. The origin of the infection was not determined.

II. Infection of Peritoneum After Removal of Scirrhus Cord, Followed by an Abscess Between the Liver and Diaphragm, with Rupture Into Lung and Discharge of Pus Through Trachea.

Patient (2016), a one-year grey gelding, castrated by castrator during spring of 1899, and presented at clinic October 26, 1899, with two small scirrhus cords, each about 4 cm. diam., each with a fistulous opening.

The two tumors were removed under chloroform anaesthesia and usual antiseptic precautions. The wounds were packed with iodoform gauze and sutured.

On October 27 the tampons were removed and omitted. Temperature 101.4° F. Wound washed with 1:1000 sublimate solution. October 28, temperature 102.8; October 29, 103.4; 30, 102; 31, 101.5; November 1, 101.4; 2, 105.4; 3, 105.2; 4, 105; 5, 103.4; 6, 101.8. November 7 to 14 the temperature vacillated between 101 and 103. During entire time appetite had been good, and the wounds had been dressed daily with 1:1000 sublimate solution, and with some misgivings the patient was discharged on the 14th. The colt felt well and seemed right except for the erratic temperature. The wounds were well healed.

On November 28 patient was returned to clinic with history that he had travelled home ten miles without difficulty, had been turned to grass and appeared well until November 22, when his feet and legs were found much swollen from hoof to body and the appetite had failed, along with a general aspect of serious disease.

These untoward symptoms continued without material change till his return, looking unthrifty, with staring coat, emaciation, debility, a temperature of 104.9 and pulse of 60. Exploration per rectum revealed no difficulty about the inguinal rings and the wounds made had healed.

From the time of return until December 4 the patient showed a capricious, poor appetite, with a temperature vacillating between 101 and 103.5 with progressing emaciation and weakness.

On December 4, a cough appeared, with a thick, dark reddish foetid discharge from the mouth and nostrils; the temperature dropped to 99.8 to rise shortly after to 104.8.

Diagnosing a metastatic abscess of lungs, a trachea tube was inserted, after which a trocar was inserted through the chest wall into the right lung and about 10 liters of saline solution were injected into the suppurative area through the trocar canula and allowed to escape through the trachea and trachea tube, washing out much pus. The patient seemed for a time stronger, but the temperature quickly rose to 106.6. The injection of saline solution was repeated in a few hours. The patient died during the night of December 4.

The autopsy on December 5 revealed right pleura somewhat inflamed, especially at border of diaphragm, some dark reddish flocculent exudate present.

Right lung adherent to diaphragm throughout its posterior surface. Diaphragm much thickened. Between the liver and the posterior part of the diaphragm a large abscess existed of about 5 liters capacity. This had ruptured forward through the diaphragm into the right lung, inducing the symptoms of pulmonary abscess. The posterior and central portions of the right lung were largely necrotic, the other portions mostly hepatized. Small areas of hepatization occurred in the left lung. The capsule of the liver was intact and at the point of the abscess about 1 cm. thick. The abscess was between Glisson's capsule and the diaphragmatic peritoneum.

The infection had, it seems, entered the peritoneal cavity through the wound made into the peritoneal sheath of the spermatic cord during the removal of the tumors, had become located and vegetated between the hepatic and diaphragmatic layers of peritoneum and opening in the direction of least resistance had penetrated the right lung, and opening into a large bronchus escaped through the trachea and nostrils.

An error of judgment was probably made in removing the

pack from the operative wound so early as 24 hours after operating, and the disturbance of the wound led to the entrance of the infecting microorganisms.

The case is unique in that the inguinal wounds did well apparently and that a fatal infection of the peritoneal cavity supervened, at a point far removed from the wound, without inducing a general peritonitis. The peritonitis so far as could be observed during life or seen after death was definitely confined to the abscess area.

III. Metastatic Abscess of Bronchial Lymphatics.

Patient (2669), a roadster foal, 3 months. Late in August, 1900, a suppurating sore was noted on the supero-external face of the left tarsus, presumably due to a wound. From this point the pus gravitated downwards in the subcutaneous tissues for a distance of 5 to 6 cm., and showing no tendency to recover the patient was presented at the clinic on Sept. 8 in condition described. The general appearance of the animal was bad, being somewhat emaciated, with rough, staring coat. The walls of the suppurating cavity were swollen, but rather soft, indistinct, without a good line of demarcation. The pus was yellowish-white and rather thin.

The suppurating sac was opened at the most inferior part and dressed antiseptically. On September 16 the pus had gravitated beyond the dependent opening made on the 8th, and this opening was continued 2 to 3 cm. lower down, giving a free opening and the animal discharged with directions for antiseptic handling.

On October 2 the case returned with an abscess at the postero-external side of the femoro-tibial articulation, which on being opened discharged .5 liter of pus. The abscess cavity was dressed with antiseptic pack. The general condition of the foal had declined, but it continued to take the milk from the dam's udder and eat some food in addition.

At this period the dam also appeared indisposed, was becoming emaciated and showed marked bulimic, leaving good food to eat boards from the paddock fence and rubbish from the ground. This was corrected by tonics.

The suppurative tracts at tarsus had not yet healed, were freely opened and cauterized. This area now improved.

The abscess in region of femoro-tibial articulation, however, exhibited no tendency to heal, but the discharge of pus rather increased. At the same time swelling appeared in the popliteal region.

About October 10 the patient received an accidental wound of the coronet of the right hind foot on the outer side, apparently due to a tread from the dam. Careful disinfection brought about an early subsidence of lameness, and the wound apparently healed in five or six days.

On October 12 a careful digital exploration revealed a very small communication with a deeper seated abscess, which had its location in the popliteal space. This was freely opened and .5 liter of pus evacuated.

The cavity reached from the gastrocnemius upwards to a level with the ischiatic tuberosity; this was packed with anti-septic gauze and carefully dressed daily.

No marked improvement occurred. These abscess cavities healed slowly, but the emaciation and debility grew apace. The abscess walls were indefinite, soft, and bore shreds and masses of necrotic tissue.

On October 19 an abscess had appeared in the inguinal lymphatics, which was freely opened and carefully dressed.

October 1.—Patient much worse, showing rapid, shallow respiration, with a profuse nasal discharge of a dirty reddish color, very foetid. The right side of the chest was non-resonant. Auscultation revealed the presence of liquid (pus) in the bronchi. Abscess of lungs was diagnosed and early death anticipated. The patient grew rapidly worse and died on October 24.

Autopsy.—In the coronet at the right side of the left hind foot there was still pus visible in the tissues at the seat of the accidental wound, which occurred during presence at the clinic about October 10. The suppurating tracts about the tarsus were almost completely healed and showed nothing notable.

The large abscess cavity of the popliteal space extended from gastrocnemius to ischial tuberosity. The walls were ill-defined, soft, with much pus and necrotic shreds, and within the walls numerous suppurating areas.

The opened inguinal abscess offered nothing of interest. At the anterior end of the sheath of the penis on the left side the lymph glands were enlarged, and on section were found suppurating.

The sublumbar lymph gland of the left side was the seat of an abscess 6x10 cm. in size.

The mesenteric lymph glands of the colon varied from .5 to 3 cm. in diameter, and were filled with pus.

The posterior mediastinal lymph glands had undergone suppurative destruction, forming an abscess 7 cm. in diameter,

which had ruptured into the right lung and thence into the right bronchial system, inducing the above-related symptoms of pulmonary abscess. The right lung was affected throughout, the central portion had completely broken down, constituting a dependency to the abscess in the mediastinum, while the surrounding area was necrotic, black and extremely fœtid. The periphery showed varying degrees of hepatization and necrosis.

The left lung showed minor areas of hepatization. The pleura of right lung was congested, that of left apparently healthy. The pleural cavity contained an ordinary amount of lymph darkly colored.

The three preceding cases of spurious pulmonary abscess suggests the inquiry, how frequently and under what conditions does genuine pulmonary abscess occur? We see large suppurating cavities in tuberculosis, actinomycosis, and perhaps other chronic infections, but find scant definite data as to the occurrence of pulmonary abscess proper from metastasis in acute suppurative infections.

PENETRATING WOUND OF THE LUNG.*

By W. J. MARTIN, M. D. C., Kankakee, Ill.

On the morning of August 28, 1900, I was hurriedly called to attend a mare that had, it was thought, been gored in the pasture by a bull some time during the night. Upon arriving at the scene of the accident, I found the patient, a roan mare, six years old, standing in a stall, from which she was backed for my inspection with difficulty. While the mare was standing still, and also during movement, a current of air could be heard escaping with a slight hissing sound both during inspiration and expiration from a wound in the pleural cavity. The wound was situated on the right side, between the sixth and seventh ribs, and on a line extending about four inches above the elbow joint.

The wound in the skin and external muscles was six inches in length, and the edges were of a very ragged nature; the rent in the intercostal muscles and pleura measured four inches in length. The intercostal muscles attached to the sixth rib had been torn entirely loose from their attachment and hung in shreds over the edges of the wound.

The fingers, rendered strictly aseptic, were passed into the wound and on into the chest cavity, where shreds of the pleuræ and small torn pieces of the lung substance were felt. There

* Read before the Illinois State Veterinary Medical Association, February 12, 1901.

was not much appearance of hæmorrhage having taken place externally to any great extent, though it was feared that this had occurred internally. Viewed from every standpoint, the case was considered a desperate one, and the owner was so informed. However, it was determined to save the animal's life if possible. The wound was thoroughly irrigated with a solution of saponified cresylic acid in boiled water, one part to one hundred. I might mention in passing that this saponified cresylic acid is a preparation similar in composition to lysol. The ragged edges of the wound were next trimmed off with the dressing scissors, the fascia and muscles of the deep part was brought together with interrupted sutures as well as possible, the parts were again thoroughly irrigated with the antiseptic solution; the external muscles and skin were next brought into apposition with continuous sutures and the parts again irrigated. A compress of absorbent cotton, over which was smeared an iodoform ointment, was then placed over the wound, and over this was tightly placed a wide roller bandage, which encircled the body and breast.

The mare was ordered to be fed exclusively on green corn, and water was to be given in a pail placed in the feed box. Under no circumstances was the animal allowed to be moved from the stall, which was ordered to be kept scrupulously clean and thoroughly disinfected once a day with the antiseptic solution. The bandage and dressing was not disturbed for four days, at which time the tension of the bandage was slightly slackened. The wound was flushed night and morning under the bandage with the solution of cresylic acid by means of a syringe. The bandage was removed on the eighth day, when it was found that the opening into the pleural cavity had healed by first intention. The external wound also healed rapidly under the treatment, and the mare made an uninterrupted recovery without any complications.

Penetrating wounds of the chest are, we know, of the gravest nature, and in the horse often end in fatal complications, such as pneumothorax, hæmathorax, pneumonia, septic infection, etc. The success in this case is attributed wholly to the antiseptic precautions which were so rigidly carried out.

CALCULUS OF STENO'S DUCT IN THE HORSE.

By W. C. HOLDEN, V. S., Delphos, Ohio,

I report this case of calculus that I removed from Steno's duct, August 25, 1899, on account of its practical interest and com-

parative rareness. A brown mare, ten years old, was brought to me with an enormous swelling on the right side of her neck, extending from the submaxillary space to the base of the ear, with the history that she had not eaten much for the last four months. She was terribly emaciated, pulse normal. In the centre of the swelling there was a soft spot about the size of a silver quarter, which I opened freely and allowed about a pint of thin fluid to escape, which had a very offensive odor. I inserted my finger in search of a foreign body of some kind but failed to find any. I dressed it with antiseptic solution and sent mare home, a distance of about four miles. I saw the owner in a few days; he said the swelling had about all disappeared. On September 8th the mare was brought back with quite a swelling of the parotid gland, the submaxillary glands somewhat enlarged. I felt a soft place near the angle of the jaw, and made a free incision, which brought out a large quantity of thin, foetid matter.

I syringed the cavity with carbolic solution and then inserted my finger and removed what seemed to me a petrified timothy head. The small end was turned upward with about one-half inch doubled back. In removing it it fell on the floor and broke in three pieces. I dressed the wound with carbolic acid, one part glycerine, one part linseed oil, eight parts to be injected once a day with a syringe. I saw the mare again October 2d. She made a good recovery; had taken on flesh very rapidly and was looking well.

I have more faith now than ever in what Dr. Dunglison says—that calculi may form in every part of the animal's body. With pleasure I send you the stony substance for your examination. It is now in several pieces and has almost lost its foetid odor.

[Our examination convinces us that the foreign body was a portion of a head of timothy, which acted as a nucleus for the deposit of salts of the parotid secretion, thus forming a salivary calculus.—EDITOR REVIEW.]

HIGH TEMPERATURE.

By W. C. HANAWALT, Sheffield, Ill.

October 28, a Mr. Henry Smith, living four miles northeast of Sheffield, came into the village and called at my residence with a black mare, eight years old, which he led behind his road wagon.

He said: "Doctor, my mare keeps rubbing her head all the time, and seems to have some kind of itch. I would like if you can, to do something for her."

Approaching her more nearly, I noticed the left side of her head with the skin rubbed off from the muzzle to the ear, swollen and erysipelatous, pulse very rapid and weak. Auscultation revealed a roaring sound at the base of her neck or breast. Râles in the large bronchi and a purring sound lower down. Surface of the body was extremely warm. Temperature at rectum 108° F. I had proceeded thus far with the examination when suddenly the mare became violent and plunged at the owner, tearing away his coat and shirt sleeves and bruising the flesh of his arm. This action on the part of the beast angered the owner, and he struck the mare with the lead rope several times, and just as he ceased to whip her she flew at him again, this time taking a piece from Mr. Smith's breast and injuring him severely, and had he not taken to his heels and run might have taken the man's life. From this time on the animal was furious. We had to lasso her and get her into the stocks to prevent her from injuring us, which she would try to do by chasing us over the fence and into the barn, etc.

After getting her into the stocks she would kick, squeal, snort, rave, bite the stocks, snap at sticks pointed at her, grabbed a bottle used for drenching and smashed it into many pieces, stamped, trembled, had spasms or convulsions, slobbered and tore around as much as she could, bound in the stocks, until she died in about one and a half hours by collapse.

[NOTE.—We think that Dr. Hanawalt has very accurately described a case of true equine rabies.—R. R. B.]

A FORLORN CASE OF TYMPANY.

By W. C. HANAWALT, D. V. S., Sheffield, Illinois.

A black horse, eight years old, belonging to Mr. Westervelt, had been acting colicky about 24 hours. Mr. W. gave it his pet remedy of laudanum, ether and nitre without effect, there being only a short cessation of pain, until he saw the animal was "badly bloated," as he termed it, and the rectum was protruding about six inches, and the beast was swaying and staggering about the stall as if about to fall and die. At this stage of the disease I happened to pass, when he called me in. I had no idea that I could save the horse, but saw a good opportunity to investigate. I sent my trocar in at five different places

and relieved the gases from every point ; then gave a heaping tablespoonful of salicylate of sodium followed by socotrin aloes, 3 xii. This was on March 13, and to-day (15th) the nag seems as good as ever. I report this simply to show how the unexpected will happen now and then, for I did not expect that the horse could live. The above remedies were all I gave the horse of any kind.

SCHMIDT'S TREATMENT FOR PARTURIENT PARESIS.

By A. O. KENNEDY, V. S., Columbia, Tenn.

Since I have commenced to keep a record, I have had ten cases of parturient paresis. I have saved eight out of the ten, with Schmidt's treatment. One of the cases that died, I did not do anything for at all ; she was almost dead when I saw her. I like the treatment, and will use none other so long as I have the success with it that I am having.

SERIOUS INJURY TO THE CORONARY BAND, WITH RECOVERY.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

In answer to Dr. Rogerson, F. R. C. V. S., who reports an accident to the foot of a horse, on page 511, Vol. XXIV., I had a case in a mule which was quite similar. His foot was caught in the frog of a railroad at a crossing at Brushton, N. Y., which threw him down upon the track. In trying to release the foot the coronary band was torn about two-thirds of its extent, pulling the hoof to one side at an angle of 45 degrees. I was telegraphed for, and being fourteen miles distant it was about four hours after the accident when I saw the patient. It was impossible to return the hoof to its normal position on account of the swelling and the large amount of clotted blood which had settled in the inside of the hoof. I, however, cast the mule and used warm water to dissolve the blood clots, afterwards turning him upon his back and straightening the hoof. At first I was at a loss for a contrivance to retain the hoof in its normal position ; but decided to set the foot in varnish and bandage it snugly. This was done, and the dressing was not removed for three weeks, when it had nearly healed, there being but little lameness left. Of course, the patient was placed in slings at my first visit. He made a good recovery, and eight weeks after the accident he was put to work, and is still working in that vicinity, having no deformity remaining.

FIVE INCHES OF BROKEN RIB REMOVED.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

A gray gelding, weighing 1400 pounds, was working on a new railroad at Tupper Lake, and in blasting part of a stone struck the horse's side, about seven inches from the backbone and on the ninth rib. It required a railroad ride of 64 miles and a drive of 8 miles to reach the place, and by the time I arrived the injured parts were quite badly swollen. An examination showed the rib broken. Although I thought it useless to try to save the horse, the owner insisted upon an effort being made, as he was an exceptionally valuable animal. I removed about five inches and a half of the broken rib, and he made a good recovery, but a small scar and a depression remaining as evidence of the accident.

A PLACENTAL COMPLICATION.

By FRANCIS ABELE, V. S., Quincy, Mass.

Was called to remove placenta from cow. It was the first retained one that this man had ever had on his place. What was outside appeared "ripe" and hung low. There seemed to be a second short section. Felt in, but could not follow it. Lost it at cervix. Then discovered that there was a small rent in cervix through which the small end of placenta had penetrated, thus holding the heavy end in check. I cut short end up close and removed both at once.

DEPARTMENT OF SURGERY.

By L. A. AND E. MERILLAT,

of the McKillip Veterinary College, Chicago, Ill.

TRAUMATIC VENTRAL HERNIA.

No part of veterinary kelology is more important than that of ventral hernia, the exposing and predisposing causes of which are legion in domestic mammals.

An abdominal hernia is called "ventral" when it occurs independent of the natural orifices. As to contents they are generally enterocoele, epiplocele, or hepatocele. In rare cases they are splenocoele or hysterocoele. As to cause they are probably *always* traumatic, although Hertwig claimed they might result from congenital deformities of the abdominal paries. If

they ever occurred in the new-born or young animal their congenital origin could not be doubted, but as they are seen only in older animals it is, indeed, very evident they are always acquired through violence.

Kicks, horn-thrusts, collisions with blunt objects and parturition are the more common special causes. The dog is frequently ruptured from the kick of a brutal master, and while the horse and ox are less liable to sustain such a breach from the same cause, we know of one instance in which a cow was frightfully ruptured by the kick of its milker. When the abdomen is distended by food or pregnancy, a trivial thrust, which would otherwise do no damage, may suffice to fissure the muscles. The domestic animals are exposed to all manner of violence, and their viscera being supported largely by the walls, gravity naturally favors hernia formation when the walls are wounded. The violent muscular contractions of parturition is often referred to as a cause of ventral hernia in the region of the udder.

The common location of ventral hernia is along the costal margin, anywhere from the last rib to the sternal cartilage; along the linea alba or in the prominent part of the abdomen between the stifle and the ribs.

Diagnosis.—Ventral hernias vary both in shape and size. In shape they vary from well-defined tumors to flattened, shapeless swellings, while in size they are seen from the size of a small egg to that of a bushel measure. The old hernia is easily diagnosed. They are non-inflammatory, compressible, fluctuating, and generally reducible, and the orifice can readily be felt on palpation. The recent tumefaction, accompanied with the usual œdema, is, however, a more difficult proposition. The swelling prevents satisfactory manipulation of the orifice, and the obscure fluctuation, if any, may be serum, or blood as well as intestines. The veterinarian can do no better than treat all recent tumefactions resulting from violence on the expectant plan until the inflammatory action no longer masks the real condition. When located in the posterior part of the abdominal cavity, rectal exploration may reveal the orifice, but in no case must an incision be made for diagnostic purposes. Such a course is dangerous on account of the unavoidable sepsis which would follow, and besides the detection of hernia by an incision would then demand an immediate radical operation more likely to result seriously than if left alone. In dealing with recent injuries to the abdominal wall the veterinarian needs only wait

until it is possible to make a correct estimate of the lesion. In no case should such injuries be slighted or spoken of as trivial.

Treatment.—*Old Ventral Herniæ* in the small animals generally respond nicely to the palliative operations already recommended for exomphalos. Those having only a narrow fissure may even be treated with very good results by radical herniotomy. But in the large animals the usual wide opening, the strong muscular contraction, the weight of the viscus and the great danger of sepsis all serve to place old ventral among the incurable conditions, whether treated with palliative or radical surgery. Furthermore we are hardly warranted in performing a dangerous herniotomy for a condition that is neither unsightly nor harmful. The majority are not specially unsightly and they seldom strangulate. We are only justified in making the attempt in animals kept for their physical appearance. Except in a ventral hernia having an elongated narrow fissure (a rare entity) herniotomy in the horse and ox is both a dangerous and useless operation. In any event it is not an indication for "barn-yard" surgery and in view of the meagre result to be attained the veterinarian is foolish to risk a reputation on such unsatisfactory operations. To succeed at all there must first be an urgent demand from the owner, second, proper preparation of the patient, third, suitable appointments, and fourth, accurate surgery.

Given a patient suffering from an old ventral hernia that is submitted with the command to "kill or cure" he is first given an oleaginous purge and fed with bran for twenty-four hours after purgation has ceased. The peristalsis is suspended by giving two ounces of laudanum 12 hours before operation. During this preparatory treatment the region over and a liberal surface around the hernia is repeatedly washed and disinfected until the day of operation. When the patient is cast he is placed in a position to encourage the blood to run outward rather than into the abdominal cavity. If the bowels had not been properly emptied and the peristalsis not arrested there would always be considerable pressure against the sac to hinder the subsequent steps with the patient in this position. On the other hand if the hernia is turned uppermost the unavoidable hæmorrhage will find its way into the cavity. Between the two evils choose the former, and then there need be no delay to arrest all the capillary oozing. It is essential that all large vessels be ligated or twisted as the operation proceeds, but as the surgical position favors outward flow of blood oozing need not hinder rapid pro-

gress. The herniotomy is performed under the strictest aseptic precautions. The incision into the sac is made carefully to prevent wounding the viscera, and in a direction to favor gravity drainage during healing. When the fissure is exposed its edges are scarified with a curette and then brought into juxtaposition with catgut sutures passed completely through the wall, including the peritoneum. There is no tenable objection to the passing of such sutures through this membrane. In fact, the peritoneum always assists materially in closing the orifice. The surgical wound is then made perfectly bloodless and closed up with ordinary sutures. There is always an inclination here to cut away some of the superfluous skin, and entirely obliterate the sac. This may be done to a limited extent only, as provision must be made for considerable swelling which may rupture the sutures. A drainage opening is provided at the dependent end of the incision. The after care consists in keeping the patient quiet and in the standing position. The wound is treated as such. The sequelæ are death from septic peritonitis and chronic fistulæ.

Whenever the fissure is too wide to co-arctate with sutures, the above method is of course out of the question and the only recourse is the covered operation. To take advantage of all the possibilities of this method the patient is prepared as above mentioned, then in the recumbent position the hernia is reduced by gravity and manipulation and a steel skewer passed completely through the base of the sac. A strong cord is then passed around the tumor beneath the protruding ends of the skewer and tied tight enough to cause strangulation. The cord is left undisturbed until it sloughs off, about twenty days. The inflammatory action may be perpetuated throughout by bi-weekly injections of salt water, subcutaneously. This method does not occlude the orifice but removes the tumor by supporting the viscera. Success depends upon the stability of the adhesions produced between the subcutem and underlying textures. A large share of the old ventral herniæ cannot be satisfactorily treated by this method on account of their wide base and thickness of the sac wall. Only the hernia having a comparatively narrow base and thin wall is successfully reduced by strangulation of the sac.

Recent Ventral Herniæ offer a much more favorable field for operative interference. If treated promptly and intelligently the great majority are curable. When called immediately after the infliction of such an injury the surgeon is frequently tempted

to operate immediately, by opening the sac, returning the contents and approximating the fissure. This is always a mistake unless the skin is injured sufficiently to expose the viscera to extraneous influences. Then, of course, the life of the patient will depend upon prompt surgical interference. In all other cases herniotomy is unnecessary and dangerous. A conservative and successful method of treating recent hernia is to promptly support the viscera with a firm wad of oakum or cotton large enough to fit the orifice, and held in place with strong bandages encircling the body, until a truss can be provided to carry out the subsequent steps of the treatment. A suitable truss for this purpose is made with a rounded piece of soft wood, just large enough to fit loosely into the orifice, and nailed to a piece of sole leather and held in place with several strong elastic bands passed around the body. As fast as the orifice grows smaller the wooden piece is reduced in size until the fissure is obliterated. If the inflammatory action subsides too soon it is augmented with injection of salt water at several points around the fissure. Should a small hernia still persist after thirty days, the procedure is completed by strangulating the remaining tumor with skewer and cord as above recommended for old herniæ. An essential precaution in carrying out the steps of this method is to prevent the intestines from protruding into the sac when the truss is removed for the purpose of reducing its size. During August, 1900, we had occasion to examine an exceptionally large ventral hernia that was being treated by this method at the hospital of Dr. Derr, of Wooster, Ohio. Recently we made inquiry as to the results of the treatment, and received the following reply: "The case of ventral hernia you saw at my hospital was in a bay trotting horse, sixteen and a half hands high, eight years old, and weighing about thirteen hundred pounds. He contracted a ventral hernia July 29th by accidentally jumping astride a hitching post. The post, which was two inches by eight inches in size, penetrated the abdominal walls between the sheath and umbilicus in the median line. The horse was held fast in that position until the post was removed by sawing it at its base. When released, a sac the size of a gallon measure immediately appeared. I placed a temporary bandage around his body and had him removed to my hospital, one and a half miles away. I then made a truss out of sole leather, six by ten inches, upon which I nailed a rounded piece of wood, slightly smaller than the orifice. I then returned the bowels and adjusted the truss,

which was held in place with strong rubber webbing passed around the body, along the back and tail, so that no movement of the animal could displace it. On the morning of the 30th the abdomen was much swollen and the animal off its feed from constitutional disturbance, for which he received the usual treatment. The first four days I left the truss unmolested; as the skin was considerably bruised, I injected an antiseptic solution around and under it. After the fourth day I took it off every third day, and reduced the piece of wood with a knife, while an assistant supported the hernia. This was continued for 20 days. When swelling had disappeared, I injected salt water at four points around the orifice. In 30 days the orifice was closed. I, however, thought it advisable to keep the truss in place two weeks longer, at which time he had made a perfect recovery."

The hernia co-existing with an external wound was described under the head of abdominal wounds in preceding chapters.

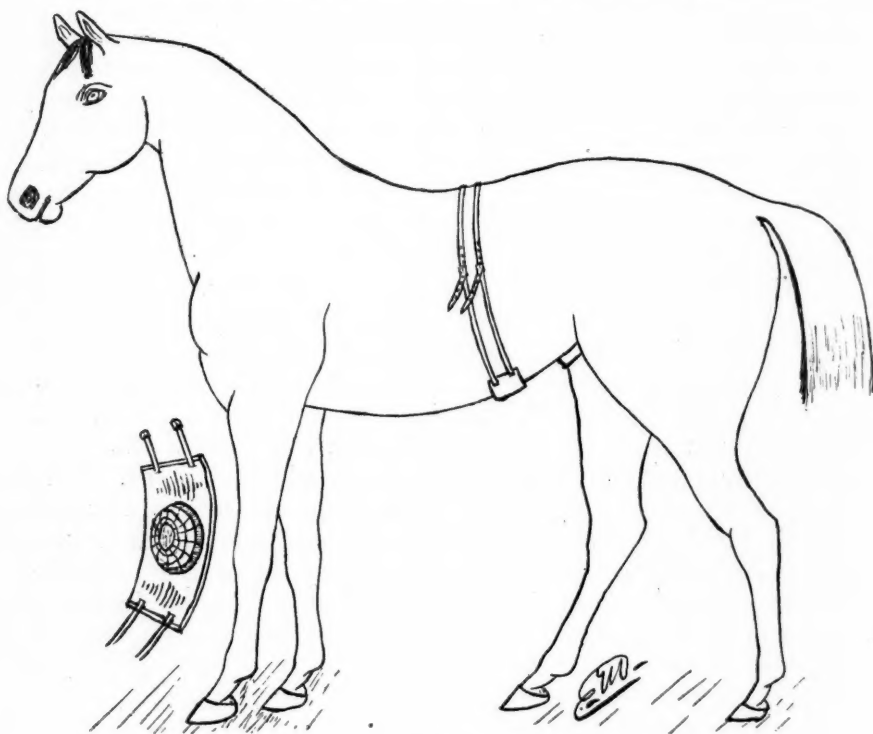


FIG. 42.

DR. DERR'S TRUSS FOR VENTRAL HERNIA.

STRANGULATED HERNIA.

In treating colics in entire horses, or even geldings, the circumspect veterinarian inspects and palpates the inguinal region. Colics of hernial origin are common in breeding districts and even in city practice, and frequently their cause is not detected until too late to resort to operative treatment. Hernia may cause mild recurrent colics which respond to ordinary medical treatment; violent abdominal pain and death in twenty-four to forty-eight hours; or a sub-acute enteralgia lasting ten days to two weeks. The strangulation may occur suddenly from coprostasis of the intestinal loop or it may be slow from gradual constriction of the hernial orifice. The lesion varies from simple pain caused by flatus or retarded fæcal matter to a fatal necrotic inflammation of the loop and adjacent tissues.

Intestinal oscheoceles and bubonocèles are the herniæ most susceptible to strangulation. Umbilical and ventral hernia of nominal size seldom incarcerate. All animals are susceptible, the stallion and bull more so than the smaller ones.

Diagnosis.—A regular, persisting abdominal pain occurring with local tenderness of a hernial sac is diagnostic. In the dog vomiting is a prominent symptom. As the disease progresses the hernia will increase in size, become more painful and irreducible, and the patient will show that characteristic anxious countenance so common to many fatal afflictions. The sub-acute variety may last several weeks or even abort spontaneously. Such hernia although not generally referred to in our textbooks on surgery are by no means uncommon in the horse. We have observed them repeatedly, both in the entire horse and geldings. Colics in ruptured horses must always be cautiously approached. If not caused by the hernia the pressure of tympanites may cause strangulation in an otherwise innocent hernia.

Operative Treatment.—In the early stage the pain of strangulated hernia may be aborted by placing the patient on its back and reducing the hernia by manipulation, but in case of failure the surgeon must at once prepare for operation. Delay is a dangerous element. The parts are well cleaned with strong antiseptic, the patient rolled in the dorsal position with the posterior extremity well elevated, and an incision carefully made so as to expose the hernial contents. The bowels are then oiled and punctured with a small trocar and canula to facilitate reposition and to reduce their volume. If the contents still resist reduction the orifice is enlarged with a probe-pointed bistoury which will always permit them to slip back into the cav-

ity without further trouble. The sac is then sutured to complete the operation. If on inspecting the contents of a hernia the intestines are necrotic resection of the diseased portion and approximation of the cut ends is indicated. But we admit the step is not eminently successful in the larger veterinary patients or even in the smaller ones. Whenever the hernia is large and contains a number of loops all of which are black success can not be expected and the patient might as well be destroyed before it revives from the anæsthetic. But the surgeon must not hastily pronounce all dark bowels necrotic. Frequently such dark colored loops when released from their imprisonment will soon resume a healthy state and the patient make a surprising recovery. The post-operative treatment consists of small quantities of laxative diet, alcoholic stimulants and oleaginous laxatives.

PARACENTESIS.

In veterinary surgery the trocar and canula may be used for two purposes :

1. As a method of exploring cavities.
2. For temporary relief, by removal of contents of cavities.

1. As a method of diagnosis, an exploratory puncture often assists in ascertaining the condition of tumors, cysts, sinuses or cavities ; in most cases it is a procedure that is useless as a curative measure, its use, however, does not modify or interfere with the treatment indicated ; but in many instances it is a decided benefit in determining the true condition and making a correct diagnosis. There is no doubt that such a method of making a diagnosis often overcomes difficulties, even if the exploratory puncture is not recommended by experienced practitioners. In making an exploratory puncture the needle or trocar must be well sterilized by boiling ; the skin must be thoroughly cleansed, because epithelial tissue together with septic material may be carried into the cavity punctured by the instrument and cause sepsis. Cysts, growths, tumors, sheaths, bursæ, and vesicles have often been infected by the improper use of the trocar, therefore it is always necessary to take every precaution possible to prevent such infection when using the trocar for this purpose.

2. The use of the trocar for temporary relief. This procedure is never used as a curative measure ; to remove gas from the intestinal tract, or fluids from the peritoneal or thoracic cavities does not remove the cause that excites the accumulation of gas or fluids in these cavities ; the removal of gas from the intestine

may prevent asphyxia ; the removal of fluids from a cavity or sinus may relieve the pain by removing the pressure upon the distended wall temporarily. This is often beneficial in preparing patients for an operation but is never considered as a radical cure for the existing condition.

Paracentesis is an operation frequently used in both human and veterinary surgery, but there are more indications for it in the latter than the former. The operations of this class that belong to abdominal surgery may be considered as follows :

1. Celiocentesis (tapping the abdomen).
2. Enterocentesis (tapping the intestine).
3. Gastrocentesis (tapping the stomach).
4. Vesicocentesis (tapping the bladder).
5. Oscheocentesis (tapping the scrotum).
6. Nephrocentesis (tapping the kidney).

Besides the above mentioned surgical punctures we may mention a few more operations of this nature that do not belong to abdominal surgery, but which are frequently indicated and practiced to good advantage in veterinary surgery :

- (a) Thoracocentesis (puncturing thorax).
- (b) Keratocentesis (puncturing eye).
- (c) Thecocentesis (puncturing sheaths).

1. *Celiocentesis*.—Tapping the abdomen for the purpose of removing the contents of the peritoneal cavity is a procedure that can be adopted in case of ascites, for the purpose of verifying the diagnosis, or for temporary relief. In non-ruminating animals, the trocar should be inserted on the left side of the linea alba, but in ruminants on the right side ; in carnivora, a point is selected somewhere between the umbilicus and the anterior border of the pubis, on either side of the linea alba. Large animals are tapped while standing, but small ones can be placed upon a table. The point selected must be well disinfected.

The trocar is plunged into the paries at centre of the site selected and disinfected, and the perforator removed from the canula, which allows the contents to flow through it. This will enable the operator to verify his diagnosis.

2. *Enterocentesis*.—Tapping the intestine is the most important operation of this class. Its indications are more numerous in veterinary practice than in human, and the benefits greater than those following the puncture of other cavities. Animals suffering from tympanites are relieved of pain caused by the distended paries of the viscus ; respirations are eased by removing the pressure against the posterior part of the diaphragm,

and in many cases peristalsis is resumed after the removal of gas generated in the intestine. If the operation can be deferred long enough to clean the skin at the site selected to be punctured it should be washed carefully and disinfected. In many cases this can not be done because the patient is either too restless or in such a condition that the operation cannot be postponed long enough to do so thoroughly. The operation is performed by standing at the right side of the horse, leaning against the abdomen, and holding the trocar in the left hand over the point selected in the triangle formed between the external angle of the ilium and the posterior border of the last rib and transverse processes of the lumbar vertebra; the trocar thus held over the place selected and properly directed is driven through the abdominal walls with the right hand. It is good practice to anoint the spot with vaseline so that the hair can be parted from the point of insertion. Cutting the skin with a lance or rowelling shears is bad practice, because it leaves an open wound for infection should the patient continue to roll about again after the operation. Our particular method of tapping horses or cattle for intestinal flatulence consists of parting the hair with vaseline or any clean oil at hand, passing the instrument through the flame of a match to disinfect it and then driving it *to the hilt* at one blow. Such an operation can be repeated frequently without bad results. When abscesses form at the point

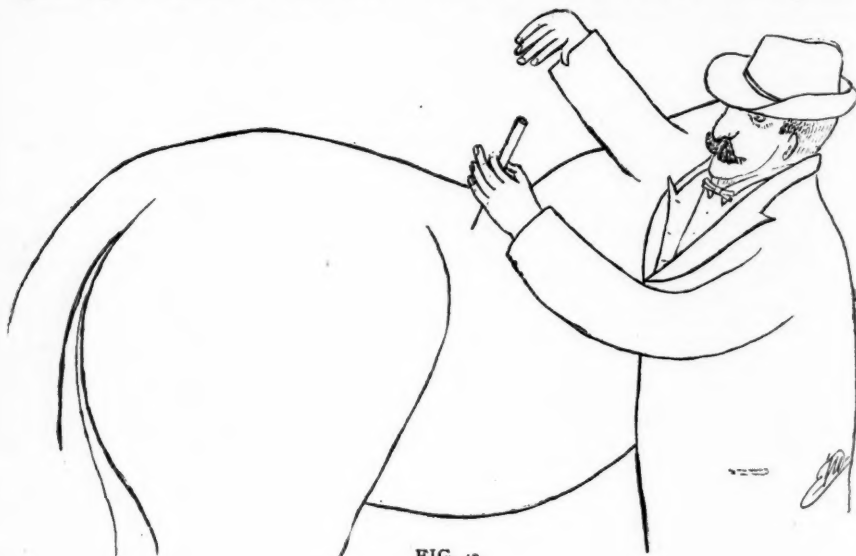


FIG. 43.
ENTEROCENTESIS.

where the trocar was inserted they should be treated surgically as early as possible, in order to prevent the formation of fistulæ (*Vol. XXIV, No. 4, Dept. of Surg.*).

It frequently occurs that tympanites cannot be relieved by tapping the cæcum; in such events the sigmoid flexure of the great colon should be tapped per rectum; this flexure can sometimes be reached from the left flank, and we often hear of veterinarians relieving tympanitic conditions by puncturing the left side.

3. *Gastrocentesis* (tapping the stomach).—This is an operation seldom practiced in the horse, but often beneficial in ruminants. The indications for puncturing the stomach of the horse are few. Its capacity being from 3 to 5 gallons, and the removal of such a small quantity of gas without removing the cause that generates it, is of no practical advantage. In ruminants however, the operation is often very beneficial. We cannot recommend the operation; we know of no one that has ever tried it upon a living subject. On the cadaver we have succeeded in searching the stomach by inserting the trocar into the last and second to the last costal space, near the costal cartilages without injuring the lungs. The experiment was made by dissecting the cervical portion of the œsophagus and attaching it to a bellows which was used to inflate the stomach, but we cannot advise any one to practice this upon a living horse. In ruminants this is a common operation. A large sized trocar should be used, and inserted into the most distended position of the abdominal wall.

4. *Vesicocentesis* (puncturing the bladder).—This is an operation that can not be repeated very often, but one that is frequently indicated in veterinary practice, especially in large animals suffering from urethral obstructions. Animals having urethral obstructions should never be cast without first examining the bladder, and if found distended, it must always be emptied before attempting to cast the patient; this is necessary in order to lessen the danger of rupturing the bladder by the fall or struggling of the patient in its attempt to free itself while being secured. In large animals, the most convenient method of reaching the bladder is through the rectum; in small ones it can be reached through the perineum or floor of the abdominal cavity.

5. *Oscheocentesis* (tapping the scrotum).—The fluid that accumulates in the scrotum as a result of dropsy of the tunica vaginalis is often removed in this way; the procedure is not a

cure for hydrocele, but a temporary relief. The conditions in hydrocele are not always the same; some cases contain fluid between the parietal and visceral portion of the tunic, while others contain fluid between the visceral portion of the tunic and other structures of the cord (*a condition common in cryptorchids*). The condition is found in the horse, bull, ram, boar, and dog, and may be complicated with varicocele or hematocele, which makes it difficult to determine whether it is a hydrocele or an inguinal hernia. Puncturing the scrotum is useful to determine the condition, to give temporary relief, and to inject irritants into the cavity to encourage the adhesion of parietes. Hydrocele of the cord is more serious than dropsy of the tunica vaginalis, and the best surgical interference in such cases is castration.

6. *Nephrocentesis* (puncturing the kidney).—This is an operation that has already been mentioned in connection with nephrotomy and nephrectomy. The curative value of this operation is very limited. The indication for such an operation is never determined primarily, but upon determining a condition requiring such interference the operator should not overlook the importance of such a procedure.

(*End of Abdominal Surgery.*)

SURGICAL ITEMS.

Sequelæ of Neurectomy.—No part of veterinary surgery attracts more attention than the so-called trophic disturbances, *i. e.*, sloughing, moist gangrene (whatever that is), breaking down, etc., following the various neurectomies. So frequently do these results occur after unnerving certain parts of the extremities of horses that they have wrought a wide and strong prejudice against nerving among the laity, and even among many veterinarians. That this prejudice is not entirely undeserving is evident from the number of cases of break-down reported in the veterinary journals. In view of the fact that the most prominent veterinarians, who have won prominence and have had a wide experience, all defend neurectomy operations in the highest terms, and report a very low percentage of bad results, we are led to the conclusion that break-downs are generally traceable to bad judgment or carelessness on the part of the surgeon. The indiscriminate application of neurectomy to all manner of conditions will ruin the reputation of any veterinarian, while the judicious resort to it as a relief for lameness will win the greatest applause. As above stated, the oldest

and most experienced surgeons report but few bad results, while the less experienced often discard the operation entirely, owing to a repetition of serious sequelæ. In looking over all of the available literature on the subject, we find a variety of opinions as to the cause of this unfortunate termination, among which are: (1) Removal of the trophic innervation, (2) Inflammation of the pedal vessels, (3) Suppurations from nail pricks, corns, and wounds which escape timely notice, (4) Mechanical violence to which the diseased part is subjected after removal of the lameness. It is our opinion that the latter is the *one* and *only* cause of break down from nerving. Whenever the lameness is removed by unnerving, the diseased part is at once required to fulfil the mission of a healthy structure. *The part is submitted to abuse which a diseased structure can not withstand, and as a result breaks down under the strain.* The dissolution may be gradual or immediate. That removal of the nerve supply has no direct effect is shown by the fact that healthy parts accidentally unnerved never undergo such processes. And, again, parts deprived of all their innervation from centric or peripheric paralysis are *entirely* immune from *similar* degenerations. A paralyzed part may atrophy from disuse, but it will never undergo an acute destructive process that bears the least resemblance to the break-down of unnerved feet. We doubt very much whether the eminent French and German writers, who refer to *phlebitis of the pedal veins* as a probable cause, ever intended that the assertion be taken very seriously. Suppurative processes from nails, corns, etc., are, of course, serious matters in unnerved feet, but not as universally fatal as is generally supposed. We have treated all manner of serious foot wounds in neurectomized feet, and find that only a small per cent. of such wounds result in loss of the foot. The wound of the unnerved foot will heal very slowly, and in some instances will refuse to heal at all, but the statement that they are frequently the cause of break-down can not be substantiated by observation. *Suppurative wounds are not a common cause of break-down in unnerved feet.* We must then look for the cause in the *original disease* for which the horse was unnerved, the disease which caused the lameness. To limit the number of serious sequelæ we would then advise strict adherence to the following rules: (1) Never operate for a lameness due to an acute or subacute inflammation. (2) Never operate for laminitis in any form. (3) Operate only upon lameness due to chronic conditions, and then work the horse according to the amount of

strain the diseased structures will reasonably withstand. (4) Keep the hoofs well shod with heels to protect the supporting structures. Examine the feet daily for wounds, or protect the sole against injury with pads. (5) Remember that an exostosis that only slightly interferes with the movement of a joint is a more serious condition for unnerving than a large one that obstructs motion entirely. The friction of an exostosis on its soft environment is one of the common causes of break-down. (6) Operate so as to encourage prompt healing, and allow a reasonable period of rest after the operation.—(L. A. M.)

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D.V.S., Milwaukee, Wis.

DIPHTHERIA IN THE HORSE [*Louis Cobbet*].—The history of this remarkable case is as follows: A child became sick with diphtheria; the father owned a pony, which was suffering from a bloody-pussy, nasal catarrh; there were also swelling of the glands and dyspnoea present. From the nasal discharge of the horse a culture was made, in which bacilli grew similar to diphtheria. This bacillus proved to be pathogenic in guinea-pigs, in the same way as the diphtheria bacillus. Large quantities of the virulent culture, or 100 fatal doses of the filtrate (which was taken from a bouillon culture and contained toxin) injected into guinea-pigs, was neutralized by the administration of the diphtheria antitoxin. A guinea-pig weighing 290.9 received an injection of 0.1 ccm. of the culture, and died on the sixth day; another guinea-pig of the same weight received 1.0 ccm. of culture and 0.019 of diphtheria antitoxin, and remained well. Aside from these observations the characteristics of the bacilli taken from the pony in regard to the culture, are the same as the true diphtheria bacilli, so that the author concluded that they were identical. Should it be possible to record similar cases, there would be a new step in regard to transmission of human diphtheria. The author also thinks that the facts which were observed so many times in regard to the antitoxic effects of the blood serum in horses, which were not treated for this purpose, can be easily explained in the way that the horses had already passed over an attack of diphtheria, during which the

production of the antitoxin took place.—(*Centralbl. f. Bacte. Paras.*)

THE ACTION OF IRON IN THE FORMATION OF BLOOD [*Dr. A. Hoffmann*].—In animals to which iron preparations were fed, the author could detect an enormous exuberancy of cells in the marrow of the bones, up to its most peripheral parts, which plainly proves that the marrow of the bone has to be considered as a blood-regenerator. The irritation effected by the iron produces a quicker transformation of the marrow cells into red blood corpuscles and a similar compensation of marrow cells through new production. The spleen and liver of animals fed with iron do not show any marked changes.—(*Virch. Arch.*)

TREATMENT OF PUNCTURED WOUND OF THE FOOT WITH PURE LACTIC ACID [*Guillemain and Cadix*].—The hoof is properly cleansed with a sublimate solution, and the horn surrounding the wound is removed. The lactic acid is then poured on the wound. After a few moments place a small tent of oakum which is previously sterilized in boiling water, and which is saturated with lactic acid, as deeply as possible into the wound. In cases of severe lameness, the application of a cataplasin of flaxseed meal, and a strong antiseptic solution is advisable. The following day the tent of oakum, which will be dry, is removed and the wound moistened again with lactic acid. In very severe cases the use of the oakum tent and the poultice is continued. Generally after the first two days' treatment the animal is considerably relieved, but in case there is no improvement on the third day, the same treatment should be continued. The authors claim that they have employed this treatment exclusively for a year, in more than 15 cases, with continual good results. On an average the animals were not laid up more than seven days.—[*Recueil de Med. Vet.*]

THE TREATMENT OF PARAPLEGIC HÆMOGLOBINURIA IN THE HORSE.—The author considers four forms of this disease: (1) Mild cases; (2) paralysis of one of the nerves; (3) apoplectic form; (4) paraplegic form. (1) The mild cases are characterized by profuse perspiration, staggering gait, and dark urine. Bleeding and friction with straw will soon bring about a cure. (2) Paralysis of one of the crural nerves. This form manifests itself by very difficult gait; excessive bending of the extremities, and dark urine containing hæmoglobin; in the first hours the patient is covered with perspiration. Bleeding in these cases is of doubtful value, applications of ice cold blankets to the loins, after perspiration ceases. In the case

of an atrophy of the crural muscles, the use of the perforating pointed iron is very useful. At the onset of the disease lukewarm enemas are recommended; after a few days cold ones. (3) The apoplectic form is characterized by a general severe affection; profuse cold perspiration; in the beginning marked colicky symptoms, lying flat on one side; nervous symptoms, originating in the brain. Trismus, paralysis of the jaws, tongue and pharynx, the patient dying often in from eight to twenty hours after first manifestation of the disease. (4) The paraplegic hæmoglobinuria is the common form, beginning with a general sweating, slight colicky symptoms, dragging, staggering gait; the animal drops, is very excited, makes efforts to get up, elevating itself in the anterior part, falling back and struggling. (a) Treatment consists in emptying the bladder with the aid of a catheter; (b) bleeding; (c) as much comfort and rest as possible (slinging is not advisable); (d) administration of acetate of ammonia, which should be given right from the beginning in doses of 50-70 g., which acts as a heart stimulant, diuretic and diaphoretic; (e) equal parts of milk and fresh water; (f) the use of ice in most cases contra-indicated; (g) frequent lukewarm salt water enemas.—(*Bul. de la Soc. Centr. de Med. Vet.*)

CLOSURE OF THE ANUS IN A CALF [*Buccavilla*].—On November 17th the author was called by A. to examine a calf which was only 24 hours old, in which he thought the rectal opening was absent. On examination the author found the animal continually straining to pass fæces, but without any result, as the opening was absent. The author made a deep incision in the inside of the sphincter muscle. The rectum could only be found after an incision about 8 to 10 cm. deep was made, after which the animal evacuated a considerable amount of fæces. The opening was then enlarged and packed with an oakum tent to prevent the wound from closing again. On January 7th the operation had to be repeated, as the wound had almost closed. The calf was then sold in good condition to the butcher.—(*Il Vet. di Camp.*)

ENGLISH REVIEW.

HEREDITARY CHOREA [*By Ernest Morgan*].—The record of this case is interesting to illustrate the influence of heredity in this form of nervous disease. The author was called to give his attention to a bitch which was supposed to never have had

distemper. She was bought for breeding purposes, and found suffering with chorea affecting the head. Would her puppies have the disease? The author thought not. She had four puppies; three were healthy and the fourth at birth was badly affected in three legs and in the head. He was quite a cripple. The bitch was put to another dog and had five puppies. Three were destroyed for malformed jaws and the two remaining were suffering from chorea affecting the head and hindquarters.—(*Veterinary Record*.)

LARGE FIBROUS TUMOR IN THE LEVATOR HUMERI [By E. W. Hoare, F.R.C.V.S.].—Under this heading the author records a case of what is also commonly known as cold abscess of the levator humeri, which was of very large size, it being the largest fibroma the author had ever removed, although containing the usual small pus cavity in its interior. The tumor was hard and extended into the jugular furrow, being firmly adherent to the surrounding tissues. Other treatments had evidently been tried and failed—that is, incision, blisters, etc. The author found the growth extending a considerable depth, and almost in apposition to the carotid artery. There was considerable hæmorrhage, and one very large vessel was severed and ligatured. The animal made a good recovery.—(*Veterinary Record*.)

GUNSHOT INJURY [By J. A. Nunn, M.R.C.V.S.].—There is no doubt that this case was a little out of the common, as the author says. A thoroughbred mare, in foal, was turned out to grass. She was noticed going slightly lame, but as it was difficult to catch her she was left alone, until later she grew worse and was examined. A number of small lumps were felt on the outside of the off pastern joint. The hair was clipped, the mud washed off, and it was found that the lumps were hard and movable under the skin; one was opened and a No. 5 chilled shot extracted. Eight or ten more were removed, and in a few days the mare was perfectly sound. The remarkable point in the case is that it must have been at least a month from the time the injury was inflicted until the first symptoms were noticed.—(*Veterinary Record*.)

PSAMMOMA OF THE BRAIN OF THE HORSE [By A. Marshall, M.R.C.V.S.].—With the exception that at times he had shown violent temper, would bite and kick viciously, or even refuse to work, this horse has done good work since the owner got him, about two years. When visited by the author he showed brain trouble, which, with the history of being a ravenous feeder,

justifies the idea of stomach staggers, and the administration of a good purge. After a temporary relief, the manifestations returned, and having resisted all treatment—bleeding, bromide of potassium, etc.—became such that the horse was destroyed by being bled to death. At the post-mortem all the organs were found healthy except the contents of the cranial cavity. "The brain being carefully removed, there was exposed, growing from the lateral ventricles, two large tumors, one in each hemisphere. These tumors were somewhat the shape and half the length of a sausage, and on being cut into proved to be of a firm consistence and greasy to the cut of the knife." Prof. McFadyen, who examined them, pronounced them psammoma. The author puts the question: Can not similar growths, during the various stages of their development, account for some of our vicious and bad-tempered horses?—(*Veterinary Record*.)

HÆMOGLOBINURIA OF THE FORE EXTREMITIES [*By H. G. Allen, M. R. C. V. S.*].—Azoturia affecting the anterior extremities is not often recorded. The author has seen one which he reports, with the history and manifestations, common to the affection. A cart mare, laid up for three days, ordinary working diet not restricted, put to work, goes about a mile, is found unable to progress, and is with difficulty brought home, where she drops. When she is urged to rise, her fore legs give way, power is completely gone. Her urine is characteristic, coffee color, with a "lakey" tint, when held up to the light. She got well under treatment of purgatives of aloes and linseed oil, febrifuges and diaphoretic drenches. In a fortnight, there was evident wasting of the pectoral and biceps muscles of both sides.—(*Veterinary Record*.) [Azoturia affecting the anterior portion of the body—the animal being able to support itself upon the hind extremities, giving way on the front legs—is now frequently observed and recorded by American practitioners.—R. B.]

EXTENSIVE DISEASE OF OVARIES AND UTERUS—OPERATION AND RECOVERY [*By H. G. Simpson, M. R. C. V. S.*].—Good three-year-old tabby has never been known to be sick, but of a sudden she stops eating, seems ill and smells very badly. She has a fœtid discharge from the vulva and a pendulous abdomen. Perhaps she has given birth to two dead kittens. At any rate the author examines her, and finds what might be the head of a fœtus in her pendulous abdomen. As long as it can not be removed through the natural channel, it will by abdominal operation. Poor tabby is chloroformed, abdomen is opened

antiseptically, and what was thought the head of a foetus is felt, but there is no body to it. The uterus and ovaries are successfully removed, the wound dressed and minus some suppuration the old cat recovers. To examine the uterus was the next step. An incision was made into the uterus and found about six ounces of the most offensive pus, but no foetus,—what had been taken for the head was a tumor.—(*Veterinary Record*.)

ITALIAN REVIEW.

LOCOMOTOR ATAXIA IN A BULL DUE TO EXCESSIVE USE.—The author was called to see a two-year-old bull which was said to be lame on the left hind leg. When in the stall he stood quiet, but had peculiar flexion of the hind legs, one after the other, all the muscles of the croup and thigh being affected with vermicular trembling. The animal was afraid of pressure over the loins, and if this was continued, would drop on the ground. There was constant dropping of urine. No fever, and appetite normal. In moving the hind quarters he would wobble sideways, and the hind legs would cross each other at each step. The history was that the bull had been covering cows for several months, and for some time had shown difficult erection. The treatment consisted in absolute rest, heavy feeding, frictions over the body, nux vomica and electricity. After eight days the animal had recovered, and was able to resume his duties.—(*Il Moderno Zootatro*.)

ŒSOPHAGOTOMY IN A DOG [*Rosso Guiseppe*].—The subject was a Danish dog which made repeated efforts to vomit, and seemed to be in great pain. A foreign body was felt in the larynx. By pharyngeal explorations a white foreign body was observed which was protruding at every effort at vomiting. Unable to remove it with forceps, the author performed œsophagotomy, and removed a piece of the false rib of veal, six centimeters long and two wide. The œsophagus and the wound were disinfected, the skin sutured with closed stitches, taking as much of the skin as possible, and antiseptic dressing applied. The animal was fed with milk. After a few days the wound began to heal, and was complete in twenty days.—(*Il Veterin. di Campagna*.)

BOTRYOMYCOSIS IN A STEER [*Ricardo Reali*].—To the Veterinary Clinic of the University of Perugia, a steer, aged nine years, was brought with the history that the tumors which he presented over his body had existed for some time, but were

enlarging recently. The animal was in good and apparently healthy condition, but presented three large tumors; one on the right hip and the other two in the left prescapular and scapular regions. These tumors had been treated with deep cauterization without result. They were irregular on their external surface, hard, painless, and those of the left side more or less mobile; these two were connected. At first sight they were thought to be actinomycotic growths, but microscopical examinations revealed their nature, the *botryomycosis ascoformans* was readily detected. For special reasons the treatment with the iodide of potassium was omitted, and an operation performed, in which the three tumors were removed. In removing the prescapular and the scapular growths, a large piece of skin had to be removed, as they were connected by a thick cord running from one to the other. This mass weighed 1 kil. 720 g. There was no hæmorrhage of any account. After 15 or 20 days the wound was in fair way to cicatrization.—(*Clinica Veterinaria*.)

A CASE OF INGUINAL ECTOPIA—CASTRATION FOLLOWED BY ENLARGEMENT OF THE SPERMATIC CORD [*By Carlo Baldi*].—This very unusual case relates to an animal which had been presented to the author in April last for inspection and to be castrated. The right testicle not being present the owner was advised to wait some time to see if it would make its descent. In June the animal was returned to the author, and although the right testicle was still absent it was decided to operate. When the left testicle was removed it was found enormously developed, and as the author was examining the wound, a mass bulged out through the opening and proved to be the right testicle, also enlarged but not as much as the left. It seems that the septum which separates the two dartoid sacs was not present and that on account of the size of the left testicle, the separation had not taken place. The case seemed to do well for a few days, but one morning the parts became much enlarged and an enormous champignon developed at the end of the left cord. This had to be removed with the ecraseur. Microscopic examination revealed the presence of *botryomices equi*. The great interest of the case rests on the absence of the dartoid septum, a probably unique case in the history of the causes of testicular ectopia.—(*Clinica Veterin.*)

A JUDGMENT against the Veterinary Service Association for \$2447.94 in favor of W. H. Walker was recorded in the Kings County (N. Y.) clerk's office on March 18.

COLLEGE COMMENCEMENTS.

THE KANSAS CITY VETERINARY COLLEGE

closed its most successful session on Thursday evening, March 14th, 1901, with the tenth annual commencement exercises, which were held in the college building, 1404 Holmes Street.

The following gentlemen were granted the degree of Doctor of Veterinary Science: R. Fred Eagle, Xavier I. Richmond, Charles W. Barnhart, Abram N. Reber, George D. Painter, Arthur Trickett, Arthur W. Miller, Oscar Stuart, John L. Burgett, Herman J. Timmermann, Benjamin F. Kaupp, D. V. S., Frank F. Brown, D. V. S., Charles J. Sihler, V. S. Dr. Thomas W. Watson, of Clarinda, Iowa, and Dr. George L. Buffington, of Baxter, Iowa, attended the post-graduate course. The total enrollment of students for the session was 58.

The Directors of the college gave a social dinner at the Midland Hotel to the students, faculty and friends of the institution on Thursday evening, March 7th, and this innovation proved a most enjoyable and agreeable one.

CORRESPONDENCE.

"CRITICS, WHO THEMSELVES ARE SORE."

MANHATTAN, KANSAS, March 12, 1901.

Editors American Veterinary Review:

DEAR SIRS:—In the March number of the REVIEW, Department of Surgery, Doctors L. A. and E. Merillat devoted considerable space to a "lecture," ostensibly intended for me, on the Ethics of Criticism. They also indulge in much irrelevant comment, if not sarcastic innuendo, in regard to what they imagine a lack of general and technical education among American veterinarians. I am not especially interested in this part of their article, but for their satisfaction I plead guilty to the "low matriculate and graduate requirements," "little technical qualifications," "lack of experience," "little red school-house" and all. Moreover, I go further and so far agree with them that, with humility and reverence, I "tip my hat" to them as "real scientists" and "store-houses of veterinary surgical knowledge." I would that I might be able to give like testimony to their success as critics, but alas!

"As soon

Seek roses in December—ice in June;

Hope constancy in wind, or corn in chaff;

Believe a woman or an epitaph,
Or any other thing that's false before
You trust in Critics, who themselves are sore."

Now, for the other part of their criticism, which to me is of infinitely more importance. The question seems to be, was I, being President of the American Veterinary Medical Association, justified in expressing disapproval of an unwarranted, and as I believed unjust, criticism of one of the American Veterinary Medical Association clinics? I agree with Doctors Merillat that "whether this clinic merited the drastic criticism it received has no bearing on the case"; but may I not ask, had that clinic any bearing on the elucidation of Dr. Young's method of operating? Was it necessary to properly describe the operation under consideration for the editors to permit Dr. Young to publicly insult the profession, severely criticise a brother operator, and reflect discredit, indirectly at least, on the American Veterinary Medical Association? There has been much covert criticism of these clinics, chiefly by those who refuse to give the profession the benefit of their overpowering genius, but this one was open, so insulting, and uncalled for, and so far out of place, in such a truly able series of articles as Doctors Merillat are giving us in their Department of Surgery, that I have no apology to offer either Doctors Merillat or Dr. Young for my comment upon it. Doctors Merillat disclaim responsibility for Dr. Young's coarse insult to those who operated at the Omaha Clinic, but by no rules of common sense or journalism can the editors of a department like theirs in the REVIEW be acquitted of responsibility for "matters of fact" appearing under their names, and the fact that Doctors Merillat replied to my comment is proof that they did not consider themselves guiltless.

I did not wish to criticise Dr. Young's "English," but a man who, in order to describe an operation, finds it necessary to criticise others, certainly displays neither skill nor good judgment, and I was, therefore, justified in my conclusion that others might be able to perform the operation as successfully as Dr. Young, even though they had neither his egotism nor his "properly appointed operating room."

In conclusion, permit me to again assure Doctors Merillat that my sole purpose in commenting upon Dr. Young's peculiar exhibition of bad taste was to resent their insult to the Omaha operator and the American Veterinary Medical Association in permitting Dr. Young's irrelevant tirade to appear under the sanction of their names; and in all that I have written, in my

former communication as well as this one, I have, with less cause, been much more "courteous" and "charitable" to Doctors Merillat and Dr. Young than they were to the operator at the Omaha Clinic.

TAIT BUTLER.

OBITUARY.

ALBERT W. CLEMENT, D.V.S.

Albert W. Clement, of Baltimore, Md., who was State Veterinarian during Governor Lowndes administration, died of a complication of diseases, Sunday, March 3, at the Johns Hopkins Hospital. He had been ill about five weeks. Dr. Clement was born in Lawrence, Mass., in 1857, where he received his early education in the public schools. He then spent two years at Harvard College, Cambridge, Mass., where he took a special preliminary medical course. In 1879 he went to McGill University, at Montreal, Canada, where he graduated from the veterinary department in 1882. He remained there the following three years as a teacher. He was also employed during that time by the Canadian Government in investigating contagious diseases in animals and in the inspection of export cattle. In 1885 he went to Europe and remained for two years, studying at the London and Berlin veterinary schools, the Koch and Virchow laboratories at Berlin, the Pasteur Laboratory at Paris and the veterinary school at Alfort. He returned to Montreal in 1887, and shortly afterward went to Baltimore. For six years he pursued investigations in pleuro-pneumonia and scientific research, conducted at the Johns Hopkins Hospital laboratory. He was also connected with the United States Bureau of Animal Industry.

He was a member of the Maryland Club, the flag of which was placed at half-mast in his memory; Elk Ridge Fox Hunting Club, Pimlico Driving Club and the American Veterinary Medical Association, of which he was formerly president. Dr. Clement is survived by a widow and a brother, Mr. George H. Clement, of the United States Treasury Department in Washington.

At a special meeting of the Maryland State Veterinary Medical Society, held on the evening of March 7, 1901, the following resolutions were adopted:

WHEREAS, The untiring zeal and energy of our lately deceased associate and friend, Dr. Albert W. Clement, as pertaining to professional

matters in general were so well known to the veterinary and medical professions, it needs no eulogy to express the esteem in which he was held, and

WHEREAS, It has pleased Almighty God to call away our lamented colleague in the pride of youth and at the zenith of his professional career, and

WHEREAS, The Maryland State Veterinary Medical Society keenly realizes in his death the loss of one of its most active and useful members, and

WHEREAS, Our duty as creatures leads us to bow to the Creator's allwise dispensation, and

WHEREAS, It is our duty and privilege to tender our deep commiseration to the afflicted,

Therefore be it

Resolved, That the sincere sympathy of this Society be extended to the bereaved widow and family, and

Resolved, That an engrossed copy of these resolutions be tendered the widow, that a copy be spread on the minute book and that a copy be inserted in a daily paper and the journals of the profession.

WM. H. MARTENET, D. V. S., *Secretary*.

SOCIETY MEETINGS.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The nineteenth semi-annual meeting was held at the Hotel Folsom, Bloomington, February 12, 1901, and was called to order at 10 A. M., with President T. J. Gunning in the chair.

The following members responded at roll-call: Drs. A. G. Alverson, Bloomington; T. J. Nattress, Delavan; T. J. Gunning, Neponset; E. J. List, Havana; John Scott, Peoria; W. J. Martin, Kankakee; C. E. Hollingsworth, La Salle; E. F. Frye, Naperville; J. Stahlman, Pontiac; Clarence Mills, Decatur; W. H. Welch, Lexington; F. H. Ames, Canton, and F. W. Corkery, Urbana.

The applications of Drs. F. W. Corkery, of Urbana (vouchers, Drs. Martin and Gunning), and Dr. F. H. Ames, Canton (vouchers, Drs. Scott and Gunning), were received. On motion of Dr. E. J. List, seconded by Dr. W. J. Martin, the candidates were duly elected.

Under the head of new business several delinquent members liquidated.

Drs. Nattress, Scott and Martin were appointed an auditing committee and the usual bills were allowed. The meeting then adjourned for dinner.

After dinner the meeting was called to order and listened to

a most interesting paper by Dr. E. J. List, of Havana, entitled "A Peculiar Disease Affecting Horses."* This was an able description of a brain or spinal disease in the horse caused by the feeding of swamp hay from the river bottoms. It brought out an interesting discussion.

Dr. A. G. Alverson then read his paper entitled "The Advantages of a Post-Graduate Course to a Practitioner." Dr. Alverson had just returned from taking a post-graduate course at McKillip Veterinary College, and was very enthusiastic in regard to the good derived from the same. In this day of rapid advancement of our profession, we need to make use of every opportunity to keep abreast of the times. A post-graduate course refreshes our memories, gives new ideas, and sends us forth with renewed vigor and confidence.

Dr. C. E. Hollingsworth, of La Salle, now reported several cases† that had come under his observation, and proved of much interest to the association. One was a ruptured uterus in a Jersey heifer from dystokia; one a case of acute indigestion, another a fractured scapula in a canine, which showed the ingenuity of the Doctor in enclosing the scapula in a plaster cast, rendering it immobile and the patient making a nice recovery.

Dr. W. J. Martin, of Kankakee, now read a very interesting report of "A Penetrating Wound of the Lung,"‡ which made a nice recovery.

The meeting then adjourned to meet in Chicago in November at the call of the President. W. H. WELCH, *Secretary*.

VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of this association was held in the City Hall, Winnipeg, on February 19, the President, Mr. J. G. Rutherford, in the chair. The following members were present: J. G. Rutherford, S. A. Coxe, W. E. Martin, J. Welch, W. J. Hinman, J. J. Irvine, J. G. Cruikshank, R. E. Monteith, A. E. Williamson, H. J. Johnston, W. A. Hilliard, W. A. Dunbar, J. A. Stevenson, W. R. Taylor, J. W. Routledge, J. D. McGillivray, G. Hilton, W. Swenerton, J. H. Lipsett, J. Golley, W. S. Henderson, H. J. Elliott, C. Little, H. D. Smith, W. H. Smith.

After routine business, the report of the Secretary-Treasurer and Registrar was presented, showing the association to be in a

*Published elsewhere in this number.

†Will be published in May REVIEW.

‡Published in the department of "Reports of Cases," in this number.

flourishing condition. During the year the membership had increased to a total of 71. The finances were in a satisfactory condition, showing a balance of \$461.91 to the credit of the association. The auditors, Messrs. Little and H. D. Smith, reported having examined the books and vouchers and found everything correct. The reports were adopted.

The meeting then proceeded to the election of officers, as follows:

President—W. A. Dunbar, Winnipeg.

Vice-President—S. A. Cox, Brandon.

Secretary-Treasurer and Registrar—F. Torrance, Winnipeg,

Council—W. Swenerton, J. G. Rutherford, W. E. Martin, W. H. Smith.

Examiners—W. A. Dunbar, W. E. Martin and F. Torrance.

The President reported an interesting case of injury to the flexor tendons of the hind leg. Both perforans and perforatus tendons had been cut through in a runaway accident, and some time elapsed before he was called in, another practitioner having been first in attendance. The leg was found enveloped in a plaster of Paris bandage, and when this was removed the wound was discovered to be in a septic condition, with sloughing edges. Fever was high and the animal suffering greatly. A more rational treatment was adopted, consisting of placing the parts at rest by means of a very ingenious splint devised for the case by the doctor, and by the application of antiseptic dressings. Under this treatment the horse had steadily progressed to recovery and was now able to resume his severe work of galloping to fires and trotting from them.

In the discussion which ensued many members took part and Mr. Dunbar was warmly congratulated on the ingenuity of his splint and the success of his treatment.

Mr. Rutherford then presented a paper on "Intestinal Lesions in the Horse." The great experience of the essayist enabled him to deal with this subject from a practical rather than a theoretic standpoint, and the members present enjoyed a treat in listening to his paper. It led to animated discussion, in which many took part, and several curious and instructive experiences were related.

Dr. Elliott, of Brandon, followed with a paper on "Influenza in Dogs," giving his experience in a recent outbreak of the disease in Brandon and detailing the treatment which he had found most successful. In the following discussion, attention was called to the frequency of strychnine poisoning in dogs and

the best mode of treating it. In the opinion of the meeting nothing better than chloral hydrate was known.

Mr. Stevenson asked Dr. Torrance to give some account of the research into the pathology of "swamp fever" which Dr. Bell and he had undertaken.

In reply Dr. Torrance said that he hoped at a future date when the investigation had reached more definite results to make a written report on the subject. At present he would only briefly refer to the work that had been done. A small sum of money had been granted by the Government for this research, and they had purchased two horses, upon which they had made experiments by inoculating them with pure cultures of the large bacillus which had been discovered in several cases of this so-called swamp fever. In one horse they had been partially successful in producing a modified form of the disease, but the other had proved refractory. This might have been owing to natural immunity, or to attenuation of the virus from artificial cultivation. They had also made several post-mortem examinations, had made temperature charts of cases for long periods of time and had made numerous examinations of blood as well as blood counts. In conclusion he pointed out the importance of continuing the investigation into a disease which is probably the greatest menace to horse owners in this province, and asked the co-operation of the members in securing a further grant for this object, and in contributing their experience with the disease.

Several members spoke on the subject, and all agreed as to the importance of the investigation. It was moved by Mr. C. Little, seconded by Mr. Stevenson, and carried unanimously, that this association petition the Government to make a further grant to Drs. Bell and Torrance for the purpose of continuing their research into swamp fever in horses.

It was moved by Mr. Cox, seconded by Mr. Martin, that the sum of fifty dollars be given to Dr. Torrance for his services in this research. Carried.

On motion of Dr. Hilliard, seconded by Mr. Stevenson, it was decided to hold the semi-annual meeting in Brandon, the date to be fixed by the council.

Votes of thanks were passed to Dr. Bell and Dr. Torrance for their investigation, to the essayists for their valuable contributions, and to the City Council for the use of the room as a place of meeting. The meeting then adjourned.

F. TORRANCE, *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Under date of March 19, Secretary Stewart writes as follows:

"With the approach of the Spring and its invigorating influences, the Secretary of the A. V. M. A. would reach out to every member of the association with an invitation to consider what each may do towards making the annual meeting to be held in Atlantic City next September a power for the uplift of the association and the profession in general. Under the impulse of the vigorous new growth in all nature at this time, he trusts that each member will be enthused and stimulated anew in behalf of this organization, and that he may be favored with an early notification of papers to be offered for the program.

"It is a large task to solicit each member by personal letter, and I trust that this will not be necessary. The forum of the A. V. M. A. is one which should be enticing to every member as a place where he may present the results of his earnest efforts and best thinking, and the privilege to have part in the program should be eagerly sought. To date the members have been rather backward in this matter, and but few papers have been listed. Drs. D. P. Yonkerman, Kalamazoo, Mich.; Geo. W. Dunphy, Quincy, Mich.; Wm. McEachran, Windsor, Ont.; C. A. Cary, Auburn, Ala., and W. H. Dalrymple, Baton Rouge, La., have signified their intentions to offer papers for the coming meeting.

"The time at the command of the association for this meeting will afford ample time for the presentation and discussion of several times the number of papers offered, and it is earnestly desired that the members will promptly notify the Secretary that they will contribute to the program.

"The reports published in the veterinary journals as to the advanced preparation made by the local committee of arrangements indicates that a most valuable clinic will be offered, also that the social pleasures will be all that one could desire. Cheap transportation is assured, and with these prosperous times a very large attendance may be expected, and, in fact, is certain. Members on the Pacific Coast are writing that they are now planning to attend; members located in the Central West are inquiring if it is certain that a low rate of transportation from Buffalo can be counted upon, so that even now the outlook is most encouraging for a large attendance from the regions just mentioned.

"The report of the proceedings of the Detroit meeting was printed and distributed about December 1st, 1900, and a copy

was sent to each member, both old and new. The numerous inquiries received as to whether or not the proceedings have been published leads me to suspect that in numerous instances the report was not delivered. If any of the members who read this failed to receive a copy, they should notify me at once in order that the missing copy may be looked up and delivered."

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

The nineteenth annual meeting was held at Lansing, Feb. 5 and 6, 1901, President William Jopling presiding, when 13 applications for membership were favorably acted upon, making a total of 80 members in good standing. The reports of all committees were very thorough, showing that the work had been earnestly and carefully done. The results of this meeting showed that the members of the profession are working together harmoniously, not only among themselves, but with the State Board of Health and the State Live Stock Sanitary Commission.

Roll-call showed 45 members present, and most of them brought the ladies of their families with them, for which a good programme of entertainment was arranged. A banquet was provided for the evening of Feb. 5, at which the ladies were present and participated, Dr. H. F. Palmer acting as toastmaster.

The Treasurer's report showed a comfortable balance (\$204.21).

The papers, which were of a high order, and freely discussed, were as follows:

"The Veterinarian as a Sanitary Officer," Dr. James Drury, of Ypsilanti.

"Methods of Inspecting Dairies," Dr. Charles E. Marshall, M. A. C., Lansing.

"Ovariectomy Bovidae," Dr. H. S. Smith, Albion.

"Treatment of Wounds," Dr. W. S. Hamilton, Chelsea.

"Infection," Dr. George A. Waterman, M. A. C. Lansing.

"A Contagious Disease Affecting the Eyes of Cattle," Dr. W. M. Burdick, Chesaning.

"The Veterinarian as a Municipal Officer," Dr. J. A. Dell, Ann Arbor.

"Benign Growths," Dr. H. F. Palmer, Detroit.

"Parturient Apoplexy and Its Treatment," Dr. H. M. Gohn, St. Johns.

"Healthful Legislation," Dr. H. B. Barker, Secretary State Board of Health.

"The Veterinarian in Politics," Dr. G. W. Dunphy, Quincy.

"Strongylus Contortus and Strongylus Ovis Pulmonalis and Successful Treatment by the use of Toxaline," Dr. J. J. Walkington, Mt. Pleasant.

The following officers were elected for the ensuing year :

President—J. J. Joy, Detroit.

First Vice-President—H. F. Palmer, Detroit.

Second Vice-President—H. M. Gohn, St. Johns.

Third Vice-President—James Harrison, Maple Rapids.

Secretary and Treasurer—W. A. Giffen, Detroit.

Directors—J. Black, Richmond ; J. W. Brodie, Pontiac ; D. G. Sutherland, Saginaw ; H. S. Smith, Albion ; J. J. Walkington, Mt. Pleasant ; A. McKercher, Lansing.

The following committees were appointed :

Intelligence and Education—H. F. Palmer, chairman, Detroit ; George A. Waterman, Lansing ; U. S. Springer, Grand Rapids.

Diseases—H. M. Gohn, chairman, St. Johns ; G. W. Dunphy, Quincy ; Thomas Farmer, Grand Blanc.

Finance—W. S. Hamilton, chairman, Chelsea ; J. C. Whitney, Hillsdale ; James Drury, Ypsilanti.

Legislation—W. A. Giffen, chairman, Detroit ; F. C. Wells, Warren ; J. Black, Richmond ; G. W. Dunphy, Quincy.

W. A. GIFFEN, *Secretary*.

KANSAS CITY ASSOCIATION OF BUREAU OF ANIMAL INDUSTRY INSPECTORS.

The veterinarians employed by the Bureau of Animal Industry at Kansas City have just completed an organization with the above title. The purpose of the association will be to discuss subjects which relate to meat inspection, with a view to securing the greatest possible efficiency and uniformity in the service. Meetings will be held on the first Monday evening of each month at 7½ South James Street, Kansas City, Kans.

The following are the officers for the current quarter : President, Dr. S. E. Bennett ; First Vice-President, Dr. H. H. George ; Second Vice-President, Dr. W. U. Neil ; Secretary-Treasurer, Dr. J. S. Grove.

J. S. GROVE, *Secretary*.

NEW HAMPSHIRE VETERINARY MEDICAL ASSOCIATION.

The old association was reorganized and incorporated Feb. 20, 1901. The first meeting was held in Manchester, with Drs. Bailey, Ebbett, Clark, Dodge, Dunton, Maguire, Hart, Burchsted, Bodwell, Hyne, Russell, Loring, Wadsworth and Pope present.

The following officers were elected for the ensuing year: President, Dr. G. R. Chesley; Vice-President, Dr. G. E. Bailey; Secretary-Treasurer, Dr. L. Pope, Jr. Executive Committee—Drs. Bodwell, Loring, and Burchsted.

The old constitution was adopted with but few changes.

Dr. Pope read a paper on "Azoturia," and general discussion followed.

A previous step taken toward legislation necessitated considerable discussion at this time, and a committee was appointed to act with our attorney.

Adjourned until the first Friday in April, meeting to be held in Manchester. LEMUEL POPE, JR., M.D.V., *Secretary*.

NEWS AND ITEMS.

DR. ELISHU HANSHEW, of Brooklyn, N. Y., has been confined to his home for two months from an attack of capillary bronchitis.

DR. C. E. STEELE has been transferred from the quarantine division to the meat inspection division of the B. of A. I., and stationed at Omaha.

DR. ADOLPH EICHHORN, of New York, having successfully passed the Civil Service examination for assistant inspector B. A. I. has received his appointment and been assigned to duty at Milwaukee, Wis.

THE veterinarians of the Bureau of Animal Industry at Kansas City have organized an association, which meets monthly, for the purpose of discussing topics in relation to meat inspection.

SECRETARY OF AGRICULTURE WILSON gives out the information that 2,500,000 doses of blackleg vaccine were distributed by his department during the year 1900, and that over \$6,000,000 worth of young live stock throughout the country were saved.

DR. A. G. HOPKINS has resigned his position at the University of Wisconsin to accept a position upon the *Farmer's Advocate*, an excellent agricultural paper published at Winnipeg, Manitoba. His first article appeared in the Christmas number, and was entitled "Nineteenth Century Progress in Veterinary Science."

AT the final examinations of the New York-American Veterinary College, held the last of March, the following gentlemen were recommended to the Council of New York University for the degree of Doctor of Veterinary Surgery: Messrs. Bose, Johnson, Jones, Morris, Miller, Serling, Werner, and Wertheimer.

DR. J. F. WINCHESTER, of Lawrence, Mass., reported an interesting circumstance at the banquet of the Alumni Association of the Veterinary Department of New York University. Having a cat brought to him he diagnosed tuberculosis, which was verified by laboratory examination. Another cat, owned by the same lady, was found to be suffering from the same disease. It transpired that the two felines had probably contracted the disease from their mistress, who had fondled them continuously while an invalid from consumption.

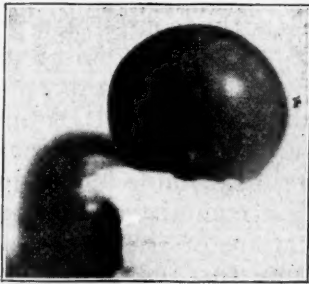
DR. HAL C. SIMPSON, Denison, Iowa, has returned from Manila, P. I., having been in the United States Transport service and made one trip. Before that he made a trip to South Africa in charge of a transport of horses and mules. He reports his total mileage for the year as 38,500. In his first trip he experienced an exciting shipwreck off the coast of Hayti, in which 580 mules were lost. An account of his travels is promised the readers of the REVIEW.

DR. RICHARD JAMES DUNGLISON, an editor and author of many medical works, is dead at his home in Philadelphia of dropsy. Dr. Dunglison was a son of Professor Robley Dunglison, of Jefferson Medical College. He was graduated from Jefferson College in 1856, and was the author of *Dunglison's Medical Dictionary* and *Dunglison's History of Medicines*. Dr. Dunglison was in the federal service from 1862 to 1865 as acting assistant surgeon.

THE banquet of the Alumni Association of the Veterinary Department of New York University (New York-American Veterinary College), held on the evening of April 1, was one of the most successful events of the kind we have ever attended, great interest being manifested and the most loyal support guaranteed to Alma Mater. Chancellor MacCracken and Dr.

Munn represented the University, and expressed the greatest pride in the Veterinary Department. A letter from Dr. Liautard was received with great enthusiasm, and his health was drank in loving friendship. From Philadelphia came Dr. Hoskins, from Massachusetts Winchester and Howard, from Baltimore Wm. Dougherty, from New Jersey the two Lowes, and most all classes were represented. Prof. Chas. A. Doremus, who holds a warm place in the hearts of every veterinarian who had the good fortune to receive chemical inspiration at his hands, was in his best mood, and so were the other speakers. A full account of the delightful event will be given in the May number.

A LARGE INTESTINAL CALCULUS.—Messrs. Higinbotham & Wood, Hamilton, Bermuda, send the following interesting item: "We take much pleasure in enclosing herewith a photo-



graph of an interesting intestinal calculus, which was taken from the abdominal cavity of a horse a few weeks ago, and being of an exceptionally large size thought it may be of interest from a scientific standpoint to have a description of it published in your veterinary journal. The stone was formed in the stomach of a horse seventeen years of age, and ruptured through, causing

almost instant death. The weight is $9\frac{1}{4}$ pounds, and circumference 21 inches, being almost perfectly round. We should be glad if you can inform us of any larger specimens of this kind being found."

THE AUTOMOBILE IN KANSAS CITY.—During the past year the manufacturers of automobiles have endeavored to establish a field of usefulness in Kansas City, but in vain. The last experiment resulted in the agent scaring a farmer's horse, and having to pay all damages, which amounted to \$75. In place of an increase in the number of cycles, and in the absence of automobiles, the horse is coming into still greater prominence. Driving clubs are enlarging their membership and increasing their facilities for the pleasure to be derived from the roadster. The horse owners' influence is being brought to bear upon the Park Boards, and boulevards and fine drives are being pushed to completion.

GOVERNMENTAL VETERINARIANS AT KANSAS CITY.—

The following is a list of the veterinarians stationed at Kansas City, in the meat inspection service: S. E. Bennett, W. R. Cooper, C. H. Davies, B. F. Kaupp, J. C. Milness, W. R. Andress, G. W. Browning, S. H. Caldwell, C. H. Cranfield, T. W. Carnachan, H. B. Chaney, C. A. Clawson, W. J. Fretz, H. H. George, J. S. Groves, D. C. Hanawalt, W. T. Lavery, A. Long, W. N. Neil, I. W. O'Rourke, J. L. Otterman, T. W. Scott, N. B. Smith, A. W. Swedberg, R. H. Thomas, N. L. Townsend, J. D. Cooper. The following is a list of veterinarians whose official headquarters is Kansas City, but who are stationed out in the various parts of the country between the Mississippi River and the Rocky Mountains, carrying out quarantine regulations: H. B. Adair, A. R. Wake, Frank T. Shannon, Louis Metsker, Thos. Castor, Howard M. Burgess, Arthur M. Rork, Monroe B. Miller, T. A. Bray, H. D. Paxson, L. J. Allen, Murray J. Myers, R. J. Blanch, Wm. G. Shaw.

BRAVE WORDS FROM MICHIGAN.—In the course of a private letter from Secretary Giffen, of the Michigan State Veterinary Medical Association, the following paragraphs occur: "We were very sorry to learn of the unsuccessful termination of the grand effort made by the American Veterinary Medical Association's Committee to obtain favorable legislation [for the Army]. However, we hope the committee will keep up the good work. I think the veterinarians of Michigan gave all the assistance they could to the committee, and we'll try to do more next time. We Michigan veterinarians pride ourselves a good deal upon our 'gameness.' * * * It took us 17 years to obtain favorable legislation in this State, but we kept at it, and in 1899 we succeeded in having a very good law passed, and we are back again this year with an amendment to the veterinary act establishing a standard similar to that required by the American Veterinary Medical Association for veterinary schools that are to be recognized; also, a provision cutting out the privilege of an examination by the State Veterinary Board of non-graduates or graduates of schools that are not recognized after May, 1902. * * * The veterinary convention in Detroit last September did us a great deal of good, and there will be a good delegation from Michigan to Atlantic City next September."

NEW JERSEY REPRESENTED.—Delegates, Dr. L. P. Hurley, of Hopewell, N. J., Dr. Chas. E. Magill, of Haddonfield, N. J., and Dr. H. W. Read of Freehold, N. J. were in attendance at the annual meeting of the Pennsylvania State Veterinary Med-

ical Association held at the University of Pennsylvania, Philadelphia, March 5th and 6th, as well as several other well known practitioners of New Jersey. President Lowe, of the "Veterinary Trust," was also a visitor at Philadelphia during the meeting and told of some of the interesting features of the forthcoming National Convention of the American Veterinary Medical Association to be held at Atlantic City the first week in September. The attractions of Atlantic City as a seaside resort alone will undoubtedly draw a large attendance. He said that it is expected that the Atlantic City meeting of the A. V. M. A. will be the largest attended meeting of any ever held in the history of the national organization, and the profession of New Jersey is proud of the honor of welcoming the veterinary hosts within its borders.

TO GIVE UP AUTOS.—After seventeen months' trial by the Illinois Electric Vehicle Transportation Company the electric cab, as a public conveyance, is declared to be a failure, and the directors of the company have voted to go into liquidation and sell their assets. The directors reached this conclusion a week ago last Saturday, and have called a special meeting of the stockholders, to be held in Jersey City, April 4, when it is expected the action of the directors will be ratified. The official reason given for going out of business is embraced in a paragraph in a notice sent by President Insull to the shareholders, as follows: "Your board is of the opinion that, owing to local conditions and the consequent high cost of maintenance, the vehicles now owned by the company cannot now be operated in the city of Chicago on a profitable basis." The local conditions referred to are the streets of Chicago. The heavy vehicles, in lurching about through ruts and rotten pavement, pounded the machinery to pieces. There are not miles enough of good pavement in Chicago to render profitable electric transportation. The cost of operation was extraordinarily large, being equal to 194 per cent. of the gross receipts. So that for every \$1 taken in the company had to spend \$1.94. It began doing business Sept. 13, 1899, and up to Feb. 1, 1901, the operating results were as follows: Gross receipts from passengers, Sept. 13, 1899, to Feb. 1, 1901, \$137,106.90; operating expenses, \$265,885.37; expenditures over receipts, \$128,778.47; percentage of expenses to receipts, 194. The showing of total receipts and expenditures in addition to operating expenses indicates that the experiment of running electric cabs in Chicago has cost local and Eastern capitalists about \$475,860, this being a dead loss. The

company has outstanding 158,620 shares of stock of the par value of \$10 each. Aside from 120 shares of this number, the amount paid in was \$5 per share. It is estimated that in one way and another there may be realized for the stockholders, \$2 per share, leaving three-fifths of their investment a loss. The vehicles cost the company about \$3500 each, and it now owns 109. The depreciation, of course, will be severe. The cabs will probably be sold in other cities where the conditions are more favorable to operation. The Illinois Electric Vehicle Company is an off-shoot of the Electric Vehicle Company of New York, from which the local company purchased vehicles. It agreed to pay the New York concern $2\frac{1}{2}$ per cent. of the gross receipts, and to give it 20 per cent. of the local company's capital stock. These two contracts have been canceled by Mr. Insull, so that in the distribution of assets only stock on which money has been paid will receive any returns. The company has had the best of management, and the board of directors was made up of prominent local and New York capitalists. The directors are: Samuel Insull, C. F. Kimball, Robert T. Lincoln, C. K. G. Billings, Edward L. Brewster, Levy Mayer, Robert McA. Lloyd, Martin Maloney, and Harry Payne Whitney.—(*Chicago Inter-Ocean, March 5.*)

REMOVING A HORSE'S LUNG.—REMARKABLE OPERATION OF A LOCAL VETERINARY—ANIMAL IS NOW AS FRISKY AS A COLT.—The following article is taken from a Springfield (Mass.) newspaper, and is published without comment: "At the horse hospital of Dr. E. C. Switzer on Jefferson Avenue is a frisky big-boned draft horse whose liveliness would seem to belie the fact that rude hands had penetrated his innermost being and abstracted a section of his breathing apparatus. The operation was not only the means of prolonging to a good old age the life of a valuable horse, but it marks a new era in the field of veterinary surgery, being the first operation of its kind of which there has been any record. The horse that was a short time ago relegated to the grave is now fattening up and championing in a stall impatient for its release, despite the fact that the greater part of its left lung has been removed. The horse was sent to Dr. Switzer by its owner, suffering with what had previously been diagnosed an abscess formation in its stomach. There was seemingly no hope for the animal and the owner was willing that it should be condemned to the rendering works, but Dr. Switzer was of the opinion that the horse's life could be saved, with its usefulness unimpaired, and he

prepared for an operation, the first of its kind and directly contrary to the accepted teachings of the veterinary cult. The horse, a big bay, whose weight had been terribly reduced by sickness, was barely able to stand up in the operating room. Dr. Switzer and his assistants prepared the animal for the ordeal by copious injections of eucaïne. After making an incision in the side at the spot where the trouble had been located with the subtlety of human surgery, the 13th rib was bared and a section of about six inches in length was sawed out. Extending the opening until it was about four inches square it was possible to directly work upon the diseased lung. In the meantime an entrance had been made through the horse's throat to the trachea, where an irritant solution was passed into the lungs, effecting the work of clearing the foreign matter from the organ and facilitating suppuration. At the line of demarkation dividing the healthy portion of the lung from the part where disease had fostered the knife was quickly brought into play and while the horse, though conscious, suffered not even a twinge of pain, the diseased lung was entirely removed and the cavity cleared of the corruption. The operation took place three weeks ago and the horse immediately began to mend, getting restive if his modicum of oats and hay were not promptly served and exhibiting no ill effects from the remarkable operation. Day by day the interior of the animal has been carefully washed and the wound closed gradually by natural granulation, until now there is an opening in perfect process of healing scarcely more than an inch in diameter where the doctor had been able to pass in his hands freely. Every day the horse is taken out into the open for a little canter, and he cavorts and tugs at his halter like an unbroken colt. It is certainly a remarkable case of veterinary surgery and will command widespread attention in the ranks of the vets. The spectacle of a horse's lungs in operation through a convenient opening in his side is a little gruesome, but in a short time the wound will be perfectly healed with nothing to indicate that the horse is not all there."

HEAVY FINE FOR EXPOSING GLANDERS.—Dr. William J. Finn, a veterinary surgeon at 285 Jay street, Brooklyn, N. Y., was fined \$250 yesterday in the Court of Special Sessions for cruelty to animals. The charge was brought by the Society for the Prevention of Cruelty to Animals. The charge on which the surgeon was convicted was that he had allowed a horse suffering with glanders and farcy to be led through the

streets, thereby endangering the health of the community. The disease glanders is contagious and is one of the worst diseases that a horse can contract.

The society regard the winning of the case as most important. It is the first instance in the history of Brooklyn that a veterinary surgeon has been convicted of a similar charge. For that reason the court was lenient, stating that if Dr. Finn or any other surgeon was again convicted for the same misdemeanor the limit of \$500 fine and one year in the penitentiary would be imposed.

The horse in question was owned by Nathaniel Terrel of 41 Water Street, Manhattan. On March 9 he sent the horse to Dr. Finn. Three days afterward Dr. Finn telephoned to Terrel that the horse had contracted glanders. Terrel replied that he could dispose of the horse in any way that he saw fit. On the same day Dr. Finn engaged William J. Canavan of 78 Atlantic Avenue to take the horse to Maspeth, Queens County, where the animal was to be disposed of. For this service Canavan was to receive 25 cents.

He had gone as far as North Oxford Street and Flushing Avenue on his way with the horse when the animal fell completely exhausted. Canavan could not get the horse up. After considerable delay he telephoned to the office of the Society for the Prevention of Cruelty to Animals and notified them of the facts of the case. Officer Nicholas Grace was sent from the office to investigate. When Grace made his investigation he found that beyond a doubt the horse was suffering from glanders and farcy. He communicated with Inspector F. O. Clarke, who ordered him to secure warrants for the arrest of Dr. Finn and Canavan, the former for allowing the horse to be led through the streets in such a condition and the latter for leading it. The two men were arrested on March 15 on warrents issued by Magistrate Teale. When they were brought up for hearing before the magistrate they both waived examination and were held for the action of the Court of Special Sessions.

The case was tried yesterday, Judge Fitzgerald presiding. Lawyer John A. Anderson appeared for Dr. Finn and Canavan, while George F. Elliott looked after the interests of the society. The first witness who was called was Terrel, the owner of the horse.

Among the witnesses present were Dr. George H. Berns, of 74 Adams Street; Dr. Roscoe R. Bell, of Seventh Avenue and Union Street; Dr. E. B. Ackerman, of Lee Avenue and Clymer

Street, surgeon for the Board of Health ; Dr. Samuel Achison, of 787 Herkimer Street ; Dr. Goubeaud, of Atlantic and Carlton Avenues, and Dr. H. Brotheridge. Each in turn testified that although he had not seen the horse the symptoms described were those of glanders and farcy.

Dr. Finn produced his assistant surgeon, Dr. Hayes, who said that he had been present when the horse was first brought into the stable. He said that he had examined it thoroughly, but had found no sign of glanders.

At this point Judge Keady asked the witness, Dr. Hayes, if he was practicing veterinary surgery under a license. The witness replied that he was not.

The next witness on the stand was Dr. Churchill, of Morristown, N. J. He said that he had examined the horse in Manhattan before he had come to Brooklyn. He testified that he saw no signs of glanders. He also was asked if he practiced under a license of the State of New York. He replied in the negative. He as well as Dr. Hayes was reprimanded by the court.

There was some excitement when Dr. Finn made the statement in his testimony that when Officer Grace served the warrant on him the officer made the proposition to him to settle the matter then and there. Grace promptly arose and accused the doctor of testifying falsely. Judge Fitzgerald rapped for order and said that he put confidence in the word of Grace, as he had been in the court a number of times previously and had always been found reliable and honorable.

When the testimony was all in the court had a consultation. As the result Dr. Finn was fined \$250 or three months in the Penitentiary. He paid the fine. Canavan was found guilty, but sentence was suspended.—(*Brooklyn Eagle*, March 28.)

WHAT REVIEW SUBSCRIBERS SAY.

"CANNOT be without the REVIEW."—*H. W. Bush, Middletown, N. Y.*

"I HAVE been reading the REVIEW for so long that I feel lost without it."—*A. O. Kennedy, V. S., Columbia, Tenn.*

"NO UP-TO-DATE VETERINARIAN can afford to be without it."—*M. J. Jones, V. S., Cuba, Ohio.*

"I COULD positively not do without the REVIEW. Hoping that the old 'stand-by' will keep up its good work as in the past."—*A. F. Lange, V. S., San Antonio, Tex.*

"I FEEL that the least I can do to show my appreciation of the REVIEW is to pay my subscription promptly. Wishing the new management every success."—*Wm. Herbert Lowe, D. V. S., Paterson, N. J.*

"AM WELL PLEASED with the results of your added energy, as shown in REVIEW. I send postal note rather than check, to save you the leeching of the New York banks."—*Francis Abele, Jr., Quincy, Mass.*

"INCLOSED please find six dollars, for which mark my subscription up to April 1, 1903. I cannot get along without the REVIEW. It is my business partner and we are the best of friends. Long live the A. V. R."—*W. C. Hanawalt, D. V. S., Sheffield, Ill.*

"ENCLOSED find check for REVIEW from April, 1901, to April, 1902. You have done more than you agreed to. The REVIEW gets better every year. I could not afford to do without it for twice the price."—*Thomas J. Pence, Troy, Ohio.*

"THE REVIEW is one of the monthly messengers to the veterinarian. New messages and the old facts put in new light, and may it continue. I trust you will have a most prosperous year."—*J. W. Groves, D.V.S., 42 York Street, Hamilton, Ont., Canada.*

"ENCLOSED please find P. O. Order for three dollars as evidence of my appreciation of the monthly visits of your journal, which I most assuredly wish to continue as long as you keep it at its present interesting and instructive character. I wish you every success."—*C. Miller, V. S., St. Louis, Mo.*

ALEX. EGER, 34 East Van Buren St., Chicago, Ill.,

Veterinary Publisher, and dealer in Veterinary Books, Drugs and Instruments, is the authorized agent of the REVIEW in Chicago and the Middle West, and will receive subscriptions and advertisements at publisher's prices.

SECRETARIES OF V. M. ASSOCIATIONS

Can make money for themselves and do much good to their profession by getting up Subscription Clubs for the REVIEW. Write us for club rates and full information.

REVIEWS TO EXCHANGE.

I have the following duplicate numbers of the AMERICAN VETERINARY REVIEW, which I would like to exchange for numbers *below* Vol. X:—Vol. XI, No. 5; Vol. XIV, No. 3; Vol. XV, Nos. 3 and 5; Vol. XVIII, No. 5; Vol. XIX, Nos. 11 and 12; Vol. XX, No. 2; Vol. XXI, No. 2; Vol. XXII, No. 1; Vol. XXIII, No. 6. Correspondence solicited for earlier volumes. Address Wm. H. GRIBBLE, D.V.S., Washington C. H., Ohio.

AUGUST, SEPTEMBER AND OCTOBER, 1900, REVIEWS WANTED.

The publishers will give 25 cents each for copies of the above numbers. Address Robert W. Ellis, D.V.S., Business Manager, 505 W. 152d St., New York City.